

Exhibit 57



Public Utilities Commission

STATE OF CALIFORNIA

Citation Date: June 6, 2017

Citation #: D.16-09-055 E.17-06-001

Utility/Operator ID#: U39E

CITATION

ISSUED PURSUANT TO DECISION 16-09-055

Electrical Corporation (Utility) To Which Citation is Issued:

Pacific Gas and Electric Company (U39E)

OFFICER OF THE RESPONDENT:

Mr. Patrick M. Hogan
Senior Vice President, Electric Operations
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94105

CITATION:

Pacific Gas and Electric Company (PG&E or Utility) is cited for the following: 1) one violation that lasted 7 days, resulting in a financial penalty of \$350,000; and 2) a second violation resulting in a penalty of \$50,000. Safety and Enforcement Division (SED) discovered these violations in its investigation of Incident Number E20151018-01, which occurred on October 18, 2015, when a PG&E tower failed and fell to the ground. The total financial penalty for this citation is \$400,000.

VIOLATIONS:

PG&E is cited for violating General Order (GO) 95, Rule 31.1 and Rule 44.1, as described below. These violations occurred when PG&E used the incorrect batter angle for all four concrete footings and "stub angles" of Tower 61/268, which resulted in a low safety factor and caused the tower to fail and fall to the ground.

1. General Order 95, Rule 31.1 Design, Construction, and Maintenance, states:

Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

Tower 61/268's steel foundation stubs were designed to have a heel batter of 2-5/8 inches by 12-inches, however, the as-measured heel batter was 1-5/8 inches by 12-inches, resulting in misalignment and discrepancy. Therefore, PG&E did not construct its transmission tower foundation safely and adequately and is in violation of GO 95, Rule 31.1.



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PG&E's employees discovered the misalignment on September 9, 2015 and proceeded with constructing the tower without correcting the misalignment.

2. General Order 95, Rule 44.1 Installation and Reconstruction, states:

Lines and elements of lines, upon installation or reconstruction, shall provide as a minimum the safety factors specified in Table 4.

GO 95, Rule 44.1 requires the minimum safety factor of a steel tower of Grade "A" construction, including its foundation, to be 1.5. SED staff concluded that PG&E did not construct Tower 61/128's foundation stubs to meet GO 95's minimum safety factor, as the tower had an actual safety factor of 0.62. Therefore, PG&E is in violation of GO 95, Rule 44.1.

The tower was erected on September 9, 2015 and was in operation from October 11, 2015 through October 18, 2015 (7 days) with a subpar safety factor.

ENCLOSURES:

The following enclosures were used to establish the findings of fact:

Enclosure 1 – SED Incident Investigation Report, dated February 25, 2017

Enclosure 2 – PG&E Moss Landing Tower Collapse Direct Cause Analysis

Enclosure 3 – PG&E Moss Landing Tower Collapse Root Cause Analysis

Enclosure 4 – Root Cause Analysis Report Addendum

STATEMENT OF FACTS

The above violations are documented in the attached *Enclosure 1 – SED Incident Investigation Report* which is based on the following: SED's field observations, SED's lab observations, interviews conducted, and review of the Moss Landing Tower Collapse reports prepared by Exponent on behalf of PG&E (Enclosures 2, 3, and 4).



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Utility/Operator ID#: U39E

SED CITATION ANALYSIS

| Element | Staff Finding |
|---|---|
| Number of violation(s) and duration of violation(s) | <p>One violation of GO 95, Rule 44.1 from October 11, 2015 to October 18, 2015, (7 days) for constructing and operating a tower with a safety factor of 0.62.</p> <p>One violation of GO 95, Rule 31.1 for improperly installing the tower on September 9, 2015.</p> |
| Severity or gravity of the offense | <p>The incident resulted in damage to utility infrastructure (approximately \$3,018,000), claims made against the utility (approximately \$467,000 as of 3/17/17), and a sustained outage for 17 hours to 55,000 customers. Violations described in this citation did not create a significant hazard to public safety.</p> |
| Conduct of the utility | <p>Prior to the incident, PG&E had inadequate maintenance of legacy drawings, inadequate process for transfer of design-related information to construction crews, and inadequate training for dimensional tolerances and field issues. PG&E did not have a practice of documenting as-built dimensions and ensuring infrastructure met design requirements.</p> <p>At the time of the installation, PG&E incorrectly constructed the footings of the tower and connected the tower segments by force, resulting in an inadequate safety factor. The inadequate safety factor violation was not detected when the tower crew did their final inspections before putting the tower into service.</p> <p>After the incident, PG&E contracted Exponent to investigate causes and implemented corrective actions based on Exponent's recommendations. PG&E updated its standards for steel specifications, raised steel from a low risk to a high risk item, made recommendations to fabricator for improving steel fabrication, conducted an assessment of all steel currently in stock to remove "out of specification" steel, conducted field assessments for all towers installed in the last 24 months (from 5/19/16), reviewed current practices, and made recommendations to employees engaged in tower footings and structure erection on improving practices and skill requirements.</p> |



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| | |
|---------------------------------------|--|
| Prior history of similar violation(s) | <p>SED's incident investigations have found PG&E in violation of GO 95, Rule 31.1, 37 times since 1999. Examples include:</p> <p>E20051002-02 – PG&E in violation of Rule 31.1 for failing to show that a pole met the safety factors specified in Rule 44.1.</p> <p>E20080127-01 – PG&E in violation of Rule 31.1 for failing to perform repairs on a pole in a timely manner.</p> <p>SED's incident investigations have found PG&E in violation of GO 95, Rule 44, 6 times since 1999. Examples include:</p> <p>E20051002-02 – PG&E in violation of Rule 31.1 for failing to show that a pole met the safety factors specified in Rule 44.1.</p> <p>E20071204-02 – PG&E in violation of Rule 44.3 for not maintaining minimum pole safety factors listed in Rule 44.1, Table 4.</p> <p>E20111219-02 – PG&E in violation of Rule 44.1 for not maintaining line and elements of the line safety factor.</p> <p>E20120228-01 – PG&E in violation of Rule 44.3 for not maintaining minimum pole safety factors listed in Rule 44.1, Table 4.</p> |
| Self-reporting of the violation | Not self-reported; SED discovered the violations during investigation of the reported incident. |
| Financial resources of the utility | 5.4 million electric customers; 4.3 million natural gas customers; \$7.094 billion authorized General Rate Case revenues for test year 2014. |



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| | |
|--|---|
| The totality of the circumstances | <p>Aggravating factors included the consequences of the incident (infrastructure/environmental damages and customer outages) and deliberate force fitting of the tower segments.</p> <p>Mitigating factors include the actions taken to address the violations and to prevent future occurrences once the utility recognized the underlying issues. To SED's knowledge, this is the first incident in which a new transmission structure failed due to incorrect construction practices.</p> <p>Other factors to consider are that PG&E was generally cooperative during SED's investigation, and PG&E possesses sufficient financial resources to pay the penalties.</p> |
| The role of precedent | Not applicable. To SED's knowledge, this is the first incident in which a new transmission structure failed due to incorrect construction practices. |
| Resultant Citation Taking All Of These Factors Into Account | \$400,000 |



Public Utilities Commission

STATE OF CALIFORNIA

Citation Date: June 6, 2017

Citation #: D.16-09-055 E.17-06-001

Utility/Operator ID#: U39E

RESPONSE:

Respondent is called upon to provide a response to this Citation by: **5:00 PM on July 6, 2017**. By way of such response, Respondent, **within 30 calendar days**, must either pay the amount of the penalty set forth in this citation¹, or appeal² the citation. In addition, the Respondent must do one of the following:

- (1) For violations constituting immediate safety hazards: Respondent must immediately correct the immediate safety hazards.
- (2) For violations that do not constitute immediate safety hazards: Violations that do not constitute immediate safety hazards must be corrected within 30 days after the citation is served. If said violations that do not constitute immediate safety hazards cannot be corrected within 30 days, then the Respondent must submit a detailed Compliance Plan to the Director of SED within 30 days after the citation issues, unless the utility and the Director of SED, before the expiration of the 30 day period, agree in writing to another date, reflecting the soonest that the Respondent can correct the violations. The Compliance Plan must provide a detailed description of when the violation will be corrected, the methodology to be utilized, and a statement supported by a declaration from the Respondent's Chief Executive Officer or appropriate designee (CEO Declaration) stating that in the Respondent's best judgment, the time that will be taken to correct the violation will not affect the safety or integrity of the operating system or endanger public safety.

Note: Respondent will forfeit the right to appeal the citation by failing to do one of the options outlined above within 30 days. Payment of a citation or filing a Notice of Appeal does not excuse the Respondent from curing the violation. The amount of the penalty may continue to accrue until a Notice of Appeal is filed. Penalties are stayed during the appeal process. A late payment will be subject to a penalty of 10% per year, compounded daily and to be assessed beginning the calendar day following the payment-due date. The Commission may take additional action to recover any unpaid fine and ensure compliance with applicable statutes and Commission orders.

¹ For fines paid pursuant to Pub. Util. Code §2107 and D.16-09-055 Respondent shall submit a certified check payable to California Public Utilities Commission using the attached Citation Payment Form. Upon payment, the fine will be deposited in the State Treasury to the credit of the General Fund and this citation will become final.

² Respondent may Appeal this citation by completing and submitting a Notice of Appeal Form. Please see the attached document, "Directions For Submitting An Appeal To A Citation Issued Pursuant to Decision 16-09-055" for information on the appeals process and the attached "Notice of Appeal Of Citation Form."



Public Utilities Commission STATE OF CALIFORNIA

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Utility/Operator ID#: U39E

NOTIFICATION TO LOCAL AUTHORITIES:

As soon as is reasonable and necessary, and no later than 10 calendar days after service of the citation is effected, Respondent must provide a notification to the Chief Administrative Officer or similar authority in the city and county where the violation occurred. Within 10 days of providing such notification, Respondent must serve an affidavit to the Director of SED, at the mail or e-mail address noted below, attesting that the local authorities have been notified; the date(s) for when notification was provided; and the name(s) and contact information for each local authority so notified.

The CPUC expects the Utility to take actions, as soon as feasible, to correct, mitigate, or otherwise make safe all violations noted on the Citation regardless of the Utility's intentions to accept or appeal the violation(s) noted in the Citation.



Elizaveta Malashenko

Director

Safety and Enforcement Division

California Public Utilities Commission

505 Van Ness Avenue

San Francisco, CA 94102

elizaveta.malashenko@cpuc.ca.gov



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: June 6, 2017

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CITATION PAYMENT FORM

I (we) _____ hereby agree to comply with this citation dated _____, and have corrected/mitigated the violation(s) noted in the citation on _____ and no later than _____, all work to make permanent corrections to any mitigated, or otherwise remaining concerns related to the violation(s) will be completed as noted in the Compliance Plan we have submitted to the Director of SED and, herewith, pay a fine in the amount of \$_____ as included in the citation.

Signature of Electrical Corporation's Treasurer, Chief Financial Officer, or President/Chief Executive Officer, or delegated Officer thereof

(Signature)

(Date)

(Printed Name and Title)

Payment must be with a certified check made payable to the **California Public Utilities Commission** and sent to the below address. Please include the citation number on the memorandum line of the check to ensure your payment is properly applied.

California Public Utilities Commission
Attn: Fiscal Office
505 Van Ness Avenue
San Francisco, CA 94102-3298

NOTE: A copy of the completed Citation Payment Form must be sent to the Director of the Safety and Enforcement Division, via email or regular mail, to the address provided on the Citation.



Public Utilities Commission

STATE OF CALIFORNIA

Citation Date: June 6, 2017

Citation #: D.16-09-055 E.17-06-001

Utility/Operator ID#: U39E

DIRECTIONS FOR SUBMITTING AN APPEAL TO A CITATION ISSUED PURSUANT TO DECISION 16-09-055

Within 30 calendar days of the Respondent being served with a **CITATION ISSUED PURSUANT TO DECISION 16-09-055**, Respondent may appeal the citation. Beyond 30 calendar days of being served with the citation, Respondent is in default and, as a result, is considered as having forfeited rights to appeal the citation. The Respondent must still correct the violation(s) as instructed in the Response section of this citation.

To appeal the citation, Appellant must file a Notice of Appeal (including a completed title page complying with Rule 1.6 of the Commission's Rules of Practice and Procedure, and attached Notice of Appeal Form) along with copies of any materials the Appellant wants to provide in support of its appeal with the Commission's Docket Office **and** must serve the Notice of Appeal, at a minimum, on

- 1) The Chief Administrative Law Judge (with an electronic copy to: ALJ_Div_Appeals_Coordinator@cpuc.ca.gov),
- 2) The Director of the Safety and Enforcement Division
- 3) The Executive Director
- 4) General Counsel
- 5) The Director of the Office of Ratepayer Advocates

at the address listed below within 30 calendar days of the date on which the Appellant is served the Citation. The Appellant must file a proof of service to this effect at the same time the Appellant files the Notice of Appeal. The Notice of Appeal must at a minimum state: (a) the date of the citation that is appealed; and (b) the rationale for the appeal with specificity on all grounds for the appeal of the citation.

California Public Utilities Commission
505 Van Ness Ave.
San Francisco, CA 94102
Attn: <Insert Title>

NOTE: Submission of a *Notice of Appeal Form* in no way diminishes Appellant's responsibility for correcting the violation described in the citation, or otherwise ensuring the safety of facilities or conditions that underlie the violations noted in the Citation.

Ex Parte Communications as defined by Rule 8.1(c) of the Commission's Rules of Practice and Procedure, are prohibited from the date the citation is issued through the date a final order is issued on the citation appeal.



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After receipt of the Appellant's *Notice of Appeal Form*, a hearing will be convened before an Administrative Law Judge. At least ten days before the date of the hearing, the Appellant will be notified and provided with the location, date, and time for the hearing. At the hearing,

- (a) Appellant may be represented by an attorney or other representative, but any such representation shall be at the sole expense of the Appellant;
- (b) Appellant may request a transcript of the hearing, but must pay for the cost of the transcript in accordance with the Commission's usual procedures;
- (c) Appellant is entitled to the services of an interpreter at the Commission's expense upon written request to the Chief Administrative Law Judge not less than five business days prior to the date of the hearing;
- (d) Appellant is entitled to a copy of or electronic reference to Resolution ALJ-299 Establishing Pilot Program Citation Appeal and General Order 156 Appellate Rules (Citation Appellate Rules); and
- (e) Appellant may bring documents to offer in evidence (Rule 13.6 (Evidence) of the Commission's Rules of Practice and Procedure applies) and/or call witnesses to testify on Appellant's behalf. At the Commission's discretion, the hearing in regard to the Appellant's appeal can be held in a CPUC hearing room at either of the following locations:

San Francisco:

505 Van Ness Avenue
San Francisco, CA 94102

Los Angeles:

320 West 4th Street, Suite 500
Los Angeles, CA 90013

The hearing(s) held in regard to the Appellant's appeal will be adjudicated in conformance with all applicable Public Utilities Code requirements.



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Utility/Operator ID#: U39E

Enclosures to Accompany Utility Appeal

Utility to add list of Enclosures as appropriate:

Exhibit 58



**Public Utilities Commission
STATE OF CALIFORNIA**

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

**CITATION
ISSUED PURSUANT TO DECISION D.16-09-055**

Gas Corporation (Operator) To Which Citation is issued: Pacific Gas and Electric (PG&E)

OFFICER OF THE RESPONDENT:

Mr. Jesus Soto, Vice President
Pacific Gas & Electric Company
6111 Bollinger Canyon Road, Room 4590-D
San Ramon, CA 94583

CITATION:

Operator is cited a financial penalty amount of \$100,000 for violating General Order (G.O.) 112-F. The California Public Utilities Commission's (CPUC) Safety and Enforcement Division (SED) found several violations as a result of its investigation of gas incident G20141024-01 that occurred on October 24, 2014 in Bakersfield.

VIOLATIONS:

1. Title 49 CFR § 192.605(a) states in part:

"General. Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response..."

Title 49 CFR § 192.614(a) states:

"Except as provided in paragraphs (d) and (e) of this section, each operator of a buried pipeline shall carry out in accordance with this section, a written program to prevent damage to that pipeline from excavation activities. For the purposes of this section, the term "excavation activities" includes excavation, blasting, boring, tunneling, backfilling, the removal of aboveground structures by either explosive or mechanical means, and other earthmoving operations."

Title 49 CFR § 192.614(c) states:

"The damage prevention program required by paragraph (a) of this section must, at a minimum."

"(2) Provide for temporary markings of buried pipelines in the area of the excavation activity before, as far as practical, the activity begins."



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

California Government Code Section 4216.3(a)(1) states:

"Any operator of a subsurface installation who receives timely notification of any proposed excavation work in accordance with Section 4216.2 shall, within two working days of that notification, excluding weekends and holidays, or before the start of the excavation work, whichever is later, or at a later time mutually agreeable to the operator and the excavator, locate and field mark the approximate location and, if known, the number of subsurface installations that may be affected by the excavation to the extent and degree of accuracy that the information is available either in the records of the operator or as determined through the use of standard locating techniques other than excavating, otherwise advise the person who contacted the center of the location of the operator's subsurface installations that may be affected by the excavation, or advise the person that the operator does not operate any subsurface installations that would be affected by the proposed excavation."

SED found PG&E in violation of Title 49 CFR § 192.605(a) because it failed to carry out the requirements of its written program under Title 49 CFR § 192.614(a), § 192.614(c), and 4216.3(a)(1) to provide for temporary markings of buried pipelines in the area of the excavation activity in response to USA ticket No. 0422144.

PG&E alleged that the third party excavator verbally informed PG&E that the excavation site was smaller than what was stated on USA ticket No. 0422144. Testimony from the excavator refuted this claim. PG&E could not provide any documentation demonstrating this claim. PG&E could not provide the names of the workers with whom PG&E met, or their roles regarding the excavation or the USA ticket. In addition, PG&E incorrectly advised the person who contacted the center that the operator does not operate any subsurface installations that would be affected by the proposed excavation.

2. Title 49 CFR § 191.15(d) states:

"Where additional related information is obtained after a report is submitted under paragraph (a), (b) or (c) of this section, the operator must make a supplemental report as soon as practicable with a clear reference by date to the original report."

In PG&E's report to PHMSA¹, PG&E referred to USA ticket 0441996 and stated that the third party started excavation before the site was marked by PG&E. Although factually correct, it omits pertinent information regarding PG&E's response to USA ticket No. 0422144 which precedes the referenced USA ticket.

PG&E failed to submit a supplementary report to PHMSA with a copy to SED, including this additional relevant information of PG&E's failure to provide markings in response to preceding USA ticket 0422144.²

¹ PHMSA incident report OMB NO: 2137-0522, No. 20140126-16552

² At the time of the incident, the requirement for a supplemental report under 49 CFR 191.15(d) was required under 49 CFR 191.15(c). The code section was amended on Dec. 19, 2016.



Public Utilities Commission STATE OF CALIFORNIA

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

Total Penalty Amount

As a result of the violations determined by SED and identified in this report, SED recommends a total fine of \$100,000. Decision 16-09-055 adopted an administrative limit of no more than \$8 million for each citation issued under the gas and electric safety citation programs.

In accordance with Decision 16-09-055, the total amount of this citation is \$100,000.

STATEMENT OF FACTS AND ENCLOSURES:

The following enclosures were used to establish the findings of fact:

- 1- *Enclosure 1 – PHMSA Incident Report Form 7100.2 dated November 21, 2014*
- 2- *Enclosure 2 – First Qtr 2015 - PGE NOPV summary letter dated May 27, 2015*
- 3- *Enclosure 3 – SED Incident Investigation Report dated July 11, 2016*
- 4- *Enclosure 4 – SED Closure Report dated October 21, 2017*
- 5- *Enclosure 5 – PG&E response to SED Closure Report dated December 11, 2017*
- 6- *Enclosure 6 – SED's Response to PGE's Response to Closure Letter dated December 27, 2017*
- 7- *Enclosure 7 – PG&E's Response to SED's Response dated January 26, 2018*

The violations in this citation were established based on the aforementioned seven enclosures, operator's records and/or substantiating documents obtained from other sources, or other reasons as stated in the attached report.



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

SED CITATION ANALYSIS

| Element | Staff Finding |
|---|---|
| Number of violation(s) and duration of violation(s) | <i>Two violations (each one a single incident):</i> <i>1. One violation of Title 49 CFR § 192.605(a)</i> <i>2. One violation of Title 49 CFR § 191.15(d)</i> |
| Severity or gravity of the offense | <i>PG&E's failure to properly respond to USA ticket No. 0422144 may have been a contributing factor to the incident that occurred on October 24, 2014 that resulted in property damage and gas release cost of approximately \$979,000. Fortunately, no injuries were reported.</i> |
| Conduct of the utility | <i>The utility is being cooperative.</i> |
| Self-reporting of the violation | <i>Not self-reported. Violations found as a result of SED's Investigation into Gas Incident G20141024-01.</i> |
| Financial resources of the utility | <i>4.3 Million customers, \$715 Million Revenue requirement</i> |



Public Utilities Commission
STATE OF CALIFORNIA

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Operator ID#: 15007

| | |
|--|--|
| The totality of the circumstances | <ol style="list-style-type: none">1. <i>PG&E failed to locate its subsurface installation and carry out the requirements of its written program under Title 49 CFR § 192.614(a), § 192.614(c), and California Government Code Section 4216.3(a)(1) for USA ticket No. 0422144.</i>2. <i>PG&E failed to submit a revised PHMSA F 7100.2 form to PHMSA with a copy to SED to include details on PG&E's failure to provide markings in response to USA ticket 0422144.</i> |
| The role of precedent | N/A |
| Resultant Citation Taking All Of These Factors Into Account | \$100,000 |



Public Utilities Commission STATE OF CALIFORNIA

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

RESPONSE:

Respondent is hereby called upon to provide a response to this Citation by: **5:00 PM on March 16, 2018**. By way of such response, Respondent, **within 30 calendar days**, must either pay the amount of the penalty set forth in this citation³, or appeal⁴ the citation. In addition Respondent must do one of the following:

- (1) For violations constituting immediate safety hazards: Respondent must immediately correct the immediate safety hazards.
- (2) For violations that do not constitute immediate safety hazards: Violations that do not constitute immediate safety hazards must be corrected within 30 days after the citation is served. If said violations that do not constitute immediate safety hazards cannot be corrected within 30 days, then the Respondent must submit a detailed Compliance Plan to the Director of SED within 30 days after the citation issues, unless the utility and the Director of SED, before the expiration of the 30 day period, agree in writing to another date, reflecting the soonest that the Respondent can correct the violations. The Compliance Plan must provide a detailed description of when the violation will be corrected, the methodology to be utilized, and a statement supported by an declaration from Respondent's Chief Executive Officer or appropriate designee (CEO Declaration) stating that in the Respondent's best judgment, the time that will be taken to correct the violation will not affect the safety or integrity of the operating system or endanger public safety.

Note: Respondent will forfeit the right to appeal the citation by failing to do one of these two options outlined in the Response above within 30 days. Payment of a citation or filing a Notice of Appeal does not excuse Respondent from curing the violation. The amount of the penalty may continue to accrue until a Notice of Appeal is filed. Penalties are stayed during the appeal process. A late payment will be subject to a penalty of 10% per year, compounded daily and to be assessed beginning the calendar day following the payment-due date. The Commission may take additional action to recover any unpaid fine and ensure compliance with applicable statutes and Commission orders.

3 For fines paid pursuant to Pub. Util. Code § 2107 and D.16-09-055 Respondent shall submit a check payable to California Public Utilities Commission using the attached Citation Payment Form. Upon payment, the fine will be deposited in the State Treasury to the credit of the General Fund and this citation will become final.

4 Respondent may Appeal this citation by completing and submitting a Notice of Appeal Form. Please see the attached document, "Directions For Submitting An Appeal To A Citation Issued Pursuant To Decision 16-09-055" for information on the appeals process and the attached "Notice of Appeal Of Citation Form."



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: February 16, 2018
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Operator ID#: 15007

NOTIFICATION TO PUBLIC AGENCIES:

As soon as is reasonable and necessary, and no later than 30 calendar days after service of the citation is effected, Respondent must provide a notification to the Chief Administrative Officer or similar local agency authority in the city and county where the violation occurred. Within 10 days of providing such notification, Respondent must serve an affidavit to the Director of SED, at the mail or e-mail address noted below, attesting that the local authorities have been notified; the date(s) for when notification was provided; and the name(s) and contact information for each local authority so notified.

The CPUC expects the Operator to take actions, as soon as feasible, to correct, mitigate, or otherwise make safe all violations noted on the Citation regardless of the Operator's intentions to accept or appeal the violation(s) noted in the Citation.


Elizaveta Malashenko
Director – Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
elizaveta.malashenko@cpuc.ca.gov



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

CITATION PAYMENT FORM

I (we) _____ hereby agree to comply with this citation dated _____, and have corrected/mitigated the violation(s) noted in the citation on _____ and no later than _____. all work to make permanent corrections to any mitigated, or otherwise remaining concerns related to the violation(s) will be completed as noted in the Compliance Plan we have submitted to the Director of SED and, herewith, pay a fine in the amount of \$ _____ as included in the citation. Also as payment for the citation, PG&E agrees to follow the remedies stated in Enclosures 3 and 6.

Signature of Gas Corporation's Treasurer,
Chief Financial Officer, or President/Chief Executive
Officer, or delegated Officer thereof

(Signature)

(Date)

(Printed Name and Title)

Payment must be with a check made payable to the **California Public Utilities Commission** and sent to the below address. Please include the citation number on the memorandum line of the check to ensure your payment is properly applied.

California Public Utilities Commission
Attn: Fiscal Office
505 Van Ness Avenue
San Francisco, CA 94102-3298

NOTE: A copy of the completed Citation Payment Form must be sent to the Director of the Safety and Enforcement Division, via email or regular mail, to the address provided on the Citation.



**Public Utilities Commission
STATE OF CALIFORNIA**

Citation Date: February 16, 2018
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**DIRECTIONS FOR SUBMITTING AN APPEAL TO A CITATION
ISSUED PURSUANT TO DECISION 16-09-055**

Within 30 calendar days of the Respondent being served with a **CITATION ISSUED PURSUANT TO DECISION 16-09-055**, Respondent may appeal the citation. Beyond 30 calendar days of being served with the citation, Respondent is in default and, as a result, is considered as having forfeited rights to appeal the citation. The Respondent must still correct the violation(s) as instructed in the Response section of this citation.

To appeal the citation, Respondent/Appellant must file a Notice of Appeal (including a completed title page complying with Rule 1.6 of the Commission's Rules of Practice and Procedure, and attached Notice of Appeal Form) along with copies of any materials the Appellant wants to provide in support of its appeal with the Commission's Docket Office and must serve the Notice of Appeal, at a minimum, on

- 1) The Chief Administrative Law Judge (with an electronic copy to: ALJ_Div_Appeals_Coordinator@cpuc.ca.gov),
- 2) The Director of Safety and Enforcement Division
- 3) The Executive Director
- 4) General Counsel
- 5) The Director of the Office of Ratepayer Advocates

At the address listed below within 30 calendar days of the date on which the Appellant is served the Citation. The Appellant must file a proof of service to this effect at the same time the Appellant files the Notice of Appeal. The Notice of Appeal must at a minimum state: (a) the date of the citation that is appealed; and (b) the rationale for the appeal with specificity on all grounds for the appeal of the citation.

**California Public Utilities Commission
505 Van Ness Ave
San Francisco, CA 94102
Attn: <Insert Title>**

NOTE: Submission of a *Notice of Appeal Form* in no way diminishes Appellant's responsibility for correcting the violation described in the citation, or otherwise ensuring the safety of facilities or conditions that underlie the violations noted in the Citation.

Ex Parte Communications, as defined by Rule 8.1(c) of the Commission's Rules of Practice and Procedure, are prohibited from the date the citation is issued through the date a final order is issued on the citation appeal.



Public Utilities Commission STATE OF CALIFORNIA

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

After receipt of the Appellant's *Notice of Appeal Form*, Appellant has a right to a hearing to be convened before an Administrative Law Judge. At least ten business days before the date of the hearing, the Appellant will be notified and provided with the location, date, and time for the hearing. At the hearing,

- (a) Appellant may be represented by an attorney or other representative, but any such representation shall be at the sole expense of the Appellant;
- (b) Appellant may request a transcript of the hearing, but must pay for the cost of the transcript in accordance with the Commission's usual procedures;
- (c) Appellant is entitled to the services of an interpreter at the Commission's expense upon written request to the Chief Administrative Law Judge not less than five business days prior to the date of the hearing;
- (d) Appellant is entitled to a copy of or electronic reference to Resolution ALJ-299 Establishing Pilot Program Citation Appeal and General Order 156 Appellate Rules (Citation Appellate Rules); and
- (e) Appellant may bring documents to offer in evidence (Rule 13.6 (Evidence) of the Commission's Rules of Practice and Procedure applies) and/or call witnesses to testify on Appellant's behalf. At the Commission's discretion, the hearing in regard to the Appellant's appeal can be held in a CPUC hearing room at either of the following locations:

San Francisco:

505 Van Ness Avenue
San Francisco, CA 94102

Los Angeles:

320 West 4th Street, Suite 500
Los Angeles, CA 90013

The hearing(s) held in regard to the Appellant's appeal will be adjudicated in conformance with all applicable Public Utilities Code requirements.



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

Notice of Appeal Form
Appeal from Citation Issued by Safety and Enforcement Division
Pursuant to Decision 16-09-055

Appellant:

Name
Vice President, Gas Operations
Gas Utility Name
Mailing Address
City, CA Zip

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007
Appeal Date: _____

"Appeal of _____ from _____ issued by Safety and
[Operator Name] [Citation Number]
Enforcement Division"

Statements supporting Appellant's Appeal of Citation (You may use additional pages if needed and/or attach copies of supporting materials along with this form).



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: February 16, 2018
Citation #: D.16-09-055 G.18-02-001
Operator ID#: 15007

Enclosures to Accompany Utility Appeal

Utility to add Enclosures as appropriate

Exhibit 59

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



May 30, 2018

EA2018-811

Dean McFarren
Manager – EAM Distribution Compliance
Pacific Gas and Electric Company (PG&E)
1850 Gateway Blvd., 5th Floor, Room 5053C
Concord, CA 94520

SUBJECT: Audit of PG&E's North Bay Division

Mr. McFarren:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Wilson Tsai of ESRB staff conducted an electric distribution audit of PG&E's North Bay Division from March 5, 2018 to March 9, 2018. During the audit, ESRB staff conducted field inspections of PG&E's facilities and equipment, and reviewed pertinent documents and records.

During the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response within 30 days of your receipt of this letter indicating all corrective actions and preventive measures, taken or planned, to address the violations to ensure compliance with GO requirements. The response should indicate the date of each remedial action and preventive measure completed within 30 days. For any outstanding items not addressed within 30 days, please provide the projected completion dates of all actions for the violations outlined in Sections II & IV of the enclosed Audit Findings.

If you have any questions concerning this audit, please contact Wilson Tsai at (415) 703-1359 or wilson.tsai@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Banu Acimis'.

Banu Acimis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosure: CPUC Audit Findings

Cc: Elizaveta Malashenko, Director, Safety and Enforcement Division, CPUC
Lee Palmer, Deputy Director, Office of Utility Safety, SED, CPUC
Charlotte TerKeurst, Program Manager, ESRB, CPUC
Ryan Yamamoto, Senior Utilities Engineer- Supervisor, ESRB, CPUC
Wilson Tsai, Utilities Engineer, ESRB, CPUC

AUDIT FINDINGS

I. Records Review

During the audit, ESRB staff reviewed the following records:

- Completed and cancelled work orders in the last 12 months
- Completed, cancelled, and pending late work orders in the last 60 months
- Patrol and detailed inspection records from March 1, 2013 to February 28, 2018
- Pole loading calculations in the last 12 months
- Third party notifications received and sent out in the last 12 months
- Reliability metrics (SAIDI, SAIFI, CAIDI) and outage report for each feeder in the division from 2013 to 2018
- Sustained outages in the division from 2013 to 2018
- New Construction projects in the last 12 months

II. Records Violations

ESRB staff observed the following violations during the record review portion of the audit:

1. GO 95, Rule 18-A2a, states in part:

“All companies shall establish an auditable maintenance program for their facilities and lines. All companies must include a timeline for corrective actions to be taken following the identification of a Safety Hazard or nonconformances with General Order 95 on the company’s facilities.”

GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.”

GO 128, Rule 17.1, Design, Construction and Maintenance, states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to

the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of [the] communication or supply lines and equipment."

ESRB staff reviewed late work orders and determined that PG&E did not address a total of 1,397 work orders by their assigned due dates.

2. GO 95, Rule 31.2, Inspection of Lines, states in part:

"Lines shall be inspected frequently and thoroughly for the purpose of insuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard."

GO 165, Section III-B, Standards for Inspection, states in part:

"Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table 1."

ESRB noted that PG&E completed overhead patrols or inspections for the following maps past their assigned due date:

1. Map SS3312 – Patrol was due on December 31, 2013. PG&E completed the patrol on June 4, 2014.
2. Map UU3301 – Inspection was due on May 28, 2014. PG&E completed the inspection on November 10, 2014.
3. Map UU3323 – Inspection was due on June 11, 2014. PG&E completed the inspection on November 5, 2014.
4. Map SS3015 – Patrol was due on December 22, 2015. PG&E completed the patrol on March 14, 2016.

3. GO 128, Rule 17.2, Inspection, states in part:

"Systems shall be inspected by the operator frequently and thoroughly for the purpose of insuring that they are in good condition and in conformance with all applicable requirements these rules."

GO 165, Section III-B, Standards for Inspection, states in part:

"Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and

safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table 1. ”

ESRB noted that PG&E completed underground inspections for the following maps past their assigned due date:

1. Map QQ3205 – Inspection was due on November 14, 2014. PG&E completed the inspection on December 18, 2014.
2. Map QQ3211 – Inspection was due on November 24, 2014. PG&E completed the inspection on December 19, 2014.
3. Map QQ3303 – Inspection was due on December 31, 2014. PG&E completed the inspection on March 13, 2015.
4. Map EE31 – Inspection was due on January 24, 2016. PG&E completed the inspection on May 22, 2017.
5. Map OO36 – Inspection was due on December 31, 2016. PG&E completed the inspection on May 25, 2017.
6. Map QQ3913 – Inspection was due on July 20, 2017. PG&E completed the inspection on September 22, 2017.
7. Map QQ3914 – Inspection was due on July 21, 2017. PG&E completed the inspection on September 28, 2017.
8. Map TT3209 – Inspection was due on June 21, 2017. PG&E completed the inspection on September 26, 2017.
9. Map TT3210 – Inspection was due on June 19, 2017. PG&E completed the inspection on September 26, 2017.
10. Map TT3210C – Inspection was due on June 21, 2017. PG&E completed the inspection on September 25, 2017.
11. Map TT3210D – Inspection was due on June 21, 2017. PG&E completed the inspection on September 30, 2017.
12. Map TT3306C – Inspection was due on May 18, 2017. PG&E completed the inspection on September 25, 2017.
13. Map UU3324 – Inspection was due on June 30, 2017. PG&E completed the inspection on September 27, 2017.
14. Map UU3417 – Inspection was due on August 14, 2017. PG&E completed the inspection on September 29, 2017.
15. Map VV3421 – Inspection was due on June 17, 2017. PG&E completed the inspection on September 28, 2017.

III. Field Inspection

During the field inspection, ESRB staff inspected the following facilities:

| Structure Type | Structure Number | Address | City |
|----------------|------------------|--------------------------------|------|
| Pole | | 1071 Dellbrook Dr. | Napa |
| Pole | | 3636 Dartmouth Dr. | Napa |
| Pole | | 3644 Dartmouth Dr. | Napa |
| Pole | 102270506 | 3656 Dartmouth Ln. | Napa |
| Pole | 102270504 | 3670 Dartmouth Ln. | Napa |
| Pole | 102270501 | 3696 Dartmouth Ln. | Napa |
| Pole | 102270501 | 3696 Dartmouth Ln. | Napa |
| Pole | 102270491 | 1119 Broadmoor Dr. | Napa |
| Pole | 102270488 | 1109 Broadmoor Dr. | Napa |
| Pole | | 1101 Broadmoor Dr. | Napa |
| Pole | | 1085 Broadmoor Dr. | Napa |
| Pole | | Across from 1077 Broadmoor Dr. | Napa |
| Pole | | 3690 Columbia Dr. | Napa |
| Pole | | 3682 Columbia Dr. | Napa |
| Pole | 102270525 | 3662 Columbia Dr. | Napa |
| Pole | 102270518 | 3653 Columbia Dr. | Napa |
| Pole | 110007112 | 1104 Princeton Ln. | Napa |
| Pole | 102270513 | 1130 Princeton Ln. | Napa |
| Pole | 102270549 | 1035 Vassar Dr. | Napa |
| Pole | | 3155 Redwood Rd. | Napa |
| Pole | | 2808 Redwood Rd. | Napa |
| Pole | | 2806 Redwood Rd. | Napa |
| Pole | | 2829 Redwood Rd. | Napa |
| Pole | | 3642 Diablo St. | Napa |
| Pole | 102285833 | 3643 Diablo St. | Napa |
| Pole | 102285834 | 3655 Diablo St. | Napa |
| Pole | 102285805 | 1701 Tallac St. | Napa |
| Pole | 102285806 | 1700 Tallac St. | Napa |
| Pole | 102285808 | 1724 Tallac St. | Napa |
| Pole | | 1732 Tallac St. | Napa |
| Pole | | 1748 Tallac St. | Napa |
| Pole | | 1772 Tallac St. | Napa |
| Pole | | 1788 Tallac St. | Napa |
| Pole | | 1800 Tallac St. | Napa |
| Pole | | 3691 Beckworth St. | Napa |
| Pole | | 3679 Beckworth St. | Napa |
| Pole | | 3672 Seneca Way | Napa |
| Pole | | 3656 Seneca Way | Napa |
| Pole | | 3642 Seneca Way | Napa |
| Pole | | 3636 Seneca Way | Napa |

| Structure Type | Structure Number | Address | City |
|----------------|------------------|--|------------|
| Pole | | Across from 3618 Seneca Way | Napa |
| Pole | | Across from 3609 Beckworth Dr. | Napa |
| Pole | | 500 Davidson St. | Novato |
| Pole | | 500 Davidson St. (Frontier Yard) | Novato |
| Pole | | 500 Davidson St. (Frontier Yard) | Novato |
| Pole | | 500 Davidson St. (Sanitation Plant) | Novato |
| Pole | | 500 Davidson St. (Sanitation Plant) | Novato |
| Pole | | 500 Davidson St. (Sanitation Plant) | Novato |
| Pole | JP 2044J | 500 Davidson St. | Novato |
| Pole | | 1 Span from 500 Davidson St. | Novato |
| Pole | | 570 Davidson St. | Novato |
| Pole | 102224958 | 6 Harkle Rd. | Novato |
| Pole | | Across from 6090 Redwood Blvd. | Novato |
| Pole | | 6965 Redwood Blvd. | Novato |
| Pole | | 1 Span from 6965 Redwood Blvd. | Novato |
| Pole | | Across from 6100 Redwood Blvd. | Novato |
| Pole | | 1225 Lynwood Dr. | Novato |
| Pole | | 30 Kavon Ct. | Novato |
| Pole | | 1217 Lynwood Dr. | Novato |
| Pole | | 1213 Lynwood Dr. | Novato |
| Pole | | 1205 Lynwood Dr. | Novato |
| Pole | | 377 Midway Blvd. | Novato |
| Pole | | 366 Midway Blvd. | Novato |
| Pole | | In front of Lynwood Dr. & Midway Blvd. | Novato |
| Pole | | 397 Midway Blvd. | Novato |
| Pole | | 1 Span East of 390 Midway Blvd. | Novato |
| Pole | | Intersection of Center St. & K St. | Novato |
| Pole | | 111 Center St. | San Rafael |
| Pole | 120050914 | 123 Center St. | San Rafael |
| Pole | 120050913 | 131 Center St. | San Rafael |
| Pole | | 142 Center St. | San Rafael |
| Pole | | 166 Center St. | San Rafael |

| Structure Type | Structure Number | Address | City |
|-------------------------|------------------|--|-------------|
| Pole | | 178 Center St. | San Rafael |
| Pole | 120050885 | Intersection of Humboldt St. & California Ave. | San Rafael |
| Pole | 120050886 | Intersection of California Ave. & Solano St. | San Rafael |
| Pole | | 169 Solano St. | San Rafael |
| Pole | 120050903 | 170 Solano St. | San Rafael |
| Pole | 120050904 | 157 Solano St. | San Rafael |
| Pole | 120050905 | 149 Solano St. | San Rafael |
| Pole | 120050906 | Across from 149 Solano St. | San Rafael |
| Pole | 120050907 | 132 Center St. | San Rafael |
| Pole | 102250908 | 120 Center St. | San Rafael |
| Pole | 120050909 | Across from 106 Center St. | San Rafael |
| Pole | 120050878 | Across from 115 K St. | San Rafael |
| Pole | | 1351 Grand Ave. | San Rafael |
| Padmounted Transformer | T-69807 | Across from 1410 Third Ave. | San Rafael |
| Subsurface Switch | SW-1722 | 901 E St. | San Rafael |
| Subsurface Junction Box | J-206 | 901 E St. | San Rafael |
| Pole | 120051492 | 901 E St. | San Rafael |
| Subsurface Transformer | T-4802 | Across from 901 E St. | San Rafael |
| Subsurface Transformer | T-5392 | Across from 1306 Third St. | San Rafael |
| Subsurface Junction Box | J-390 | Intersection of C St. & Third St. | San Rafael |
| Subsurface Transformer | T-4498 | 2061 Red Hill Ave. | San Rafael |
| Pole | | 29 Medway Rd. | San Anselmo |
| Pole | 120063214 | 49 Cedar St. | San Anselmo |
| Pole | 102238704 | 11 Miraflores Ave | San Rafael |

IV. Field Inspection Violations

ESRB staff observed the following violations during the field inspection:

1. GO 95, Rule 31.1, Design, Construction, and Maintenance, states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.”

The open-wire secondary span off the pole located at 6 Harkle Rd., Novato had visible fraying.

The pole located at 3696 Dartmouth Ln., Napa had vegetation contact above the anchor guy insulator.

2. GO 95, Rule 38, Table 2, Case 3, Column A requires a minimum clearance of 24 inches between span wires, guys, and messengers and communication conductors.

The pole located at 6 Harkle Rd., Novato had CIP conductors tied to the primary anchor guy.

The pole located at 1701 Tallac St., Napa had a CIP conductor contacting the secondary anchor guy insulator.

3. GO 95, Rule 51.6-A, Marking and Guarding, High Voltage Marking of Poles, states in part:

“Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words “HIGH VOLTAGE”, or pair of signs showing the words “HIGH” and “VOLTAGE”, not more than six (6) inches in height with letters not less than 3 inches in height. A pair of signs may be stacked to a height of no more than 12 inches. Such signs shall be of weather and corrosion-resisting material, solid or with letters cut out therefrom and clearly legible...”

The pole located at 1772 Tallac St., Napa had a missing High Voltage sign.

The pole located at 1225 Lynwood Dr., Novato had a damaged High Voltage sign.

4. GO 95, Rule 54.6-B, Vertical and Lateral Conductors, Ground Wires, states in part:

"...That portion of the ground wire attached on the face or back of wood cross arms or on the surface of wood poles and structures shall be covered by a suitable protective covering (see Rule 22.8)..."

The following poles located at the below addresses had exposed and/or damaged ground moulding:

- 1101 Broadmoor Dr., Napa
- 3662 Columbia Dr., Napa
- 2829 Redwood Rd., Napa
- 1 span from 500 Davidson St., Novato
- 1217 Lynwood Dr., Novato
- 901 E St., San Rafael

5. GO 95, Rule 56.2, Use, states in part:

"Where mechanical loads imposed on poles, towers, or structures are greater than can be supported with safety factors as specified in Rule 44 , additional strength shall be provided by the use of guys or other suitable construction.

Where guys are used with poles or similar structures capable of considerable deflection before failure, the guys shall be able to support the entire load, the pole below the point of guy attachment acting merely as a strut.

Guys shall be attached to structures, as nearly as practicable, at the center of load. They shall be maintained taut and of such strength as to meet the safety factors of Rule 44."

The pole located at 500 Davidson St., Novato in Frontier Communications' yard had slack on the secondary down guy.

6. GO 95, Rule 91.3-B, Location of Steps, states in part:

"The lowest step shall be not less than 8 feet from the ground line, or any easily climbable foreign structure from which one could reach or step. Above this point steps shall be placed, with spacing between steps on the same side of the pole not exceeding 36 inches, at least to that conductor level above which only circuits operated and maintained by one party remain."

The pole located at 3636 Dartmouth Dr., Napa lowest pole step was measured at 7 feet 1.5 inches from the ground line.

The pole located across from 6100 Redwood Blvd., Napa had a low pole step.

7. GO 128, Rule 12.2, Maintenance, states in part:

"Systems shall be maintained in such condition as to secure safety to workmen and the public in general. Systems and portions thereof constructed,

reconstructed, or replaced on or after the effective date of these rules shall be kept in conformity with the requirement of these rules.”

Subsurface transformer T-5392 located across from 1306 Third St., San Rafael had damaged signage.

Exhibit 60

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



June 11, 2018

EA2018-799

Dean McFarren
Manager – EAM Distribution Compliance
Pacific Gas and Electric Company (PG&E)
1850 Gateway Blvd., 5th Floor, Room 5053C
Concord, CA 94520

SUBJECT: Audit of PG&E's Sierra Division

Mr. McFarren:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Wilson Tsai of ESRB staff conducted an electric distribution audit of PG&E's Sierra Division from April 16, 2018 to April 20, 2018. During the audit, ESRB staff conducted field inspections of PG&E's facilities and equipment and reviewed pertinent documents and records.

During the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response within 30 days of your receipt of this letter indicating all corrective actions and preventive measures, taken or planned, to address the violations to ensure compliance with GO requirements. The response should indicate the date of each remedial action and preventive measure completed within 30 days. For any outstanding items not addressed within 30 days, please provide the projected completion dates of all actions for all violations outlined in Sections II & IV of the enclosed Audit Findings.

If you have any questions concerning this audit, please contact Wilson Tsai at (415) 703-1359 or wilson.tsai@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Banu Acimis", written over a horizontal line.

Banu Acimis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosure: CPUC Audit Findings

Cc: Elizaveta Malashenko, Director, Safety and Enforcement Division, CPUC
Lee Palmer, Deputy Director, Office of Utility Safety, SED, CPUC
Charlotte TerKeurst, Program Manager, ESRB, CPUC
Ryan Yamamoto, Senior Utilities Engineer- Supervisor, ESRB, CPUC
Wilson Tsai, Utilities Engineer, ESRB, CPUC

AUDIT FINDINGS

I. Records Review

During the audit, ESRB staff reviewed the following records:

- Completed and cancelled work orders in the last 12 months
- Completed, cancelled, and pending late work orders in the last 60 months
- Patrol and detailed inspection records from March 1, 2013 to February 28, 2018
- Pole loading calculations in the last 12 months
- Third party notifications received and sent out in the last 12 months
- Reliability metrics (SAIDI, SAIFI, CAIDI) and outage report for each feeder in the division from 2013 to 2018
- Sustained outages in the division from 2013 to 2018
- New Construction projects in the last 12 months

II. Records Violations

ESRB staff observed the following violations during the record review portion of the audit:

1. GO 95, Rule 18-A2a states in part:

"All companies shall establish an auditable maintenance program for their facilities and lines. All companies must include a timeline for corrective actions to be taken following the identification of a Safety Hazard or nonconformances with General Order 95 on the company's facilities."

GO 95, Rule 31.1, Design, Construction and Maintenance states in part:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment."

GO 128, Rule 17.1, Design, Construction and Maintenance states in part:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to

the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of [the] communication or supply lines and equipment."

ESRB staff reviewed late work orders and determined that PG&E did not address a total of 946 work orders by the assigned due date.

2. GO 95, Rule 31.2, Inspection of Lines states in part:

"Lines shall be inspected frequently and thoroughly for the purpose of insuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard."

GO 165, Section III-B, Standards for Inspection states in part:

"Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table 1."

ESRB noted that PG&E completed overhead patrols or inspections for the following maps past their assigned due date:

1. Map I3516 – Patrol was due on December 31, 2013. PG&E completed the patrol on February 25, 2014.
2. Map L20 – Inspection was due in 2016. PG&E completed the inspection on May 18, 2017.

3. GO 128, Rule 17.2, Inspection states in part:

"Systems shall be inspected by the operator frequently and thoroughly for the purpose of insuring that they are in good condition and in conformance with all applicable requirements these rules."

GO 165, Section III-B, Standards for Inspection states in part:

"Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table 1."

ESRB noted that PG&E completed underground inspections for the following map past their assigned due date:

Map J3613 – Inspection was due on June 27, 2016. PG&E completed the inspection on July 14, 2017.

III. Field Inspection

During the field inspection, ESRB staff inspected the following facilities:

| Structure Type | Structure Number | Address | City |
|----------------|------------------|---|-------------|
| Pole | | 1 Pole N/O I/O Ridge Rd. & Ralston Ln. | Newcastle |
| Pole | | 2 Poles N/O I/O Ridge Rd. & Ralston Ln. | Newcastle |
| Pole | | 3 Poles N/O I/O Ridge Rd. & Ralston Ln. | Newcastle |
| Pole | | 4 Poles N/O I/O Ridge Rd. & Ralston Ln. | Newcastle |
| Pole | | 5 Poles N/O I/O Ridge Rd. & Ralston Ln. | Newcastle |
| Pole | | 6 Poles N/O I/O Ridge Rd. & Ralston Ln. | Newcastle |
| Pole | | Intersection of Ridge Rd. & Ralston Ln. | Newcastle |
| Pole | | 198 Cary Dr. | Auburn |
| Pole | | 197 Cary Dr. | Auburn |
| Pole | | 180 Cary Dr. | Auburn |
| Pole | | 160 Cary Dr. | Auburn |
| Pole | | 146 Cary Dr. | Auburn |
| Pole | | 110 Cary Dr. | Auburn |
| Pole | | 192 Cary Dr. | Auburn |
| Pole | | 13260 Luther Rd. | Auburn |
| Pole | | Across from 13260 Luther Rd. | Auburn |
| Pole | | 13257 Luther Rd. | Auburn |
| Pole | | 227 Carriage Ln. | Auburn |
| Pole | | 239 Carriage Ln. | Auburn |
| Pole | | 251 Carriage Ln. | Auburn |
| Pole | | 252 Carriage Ln. | Auburn |
| Pole | | 13167 Luther Rd. | Auburn |
| Pole | | 131 Covey Rd. | Auburn |
| Pole | | I/O Covey Rd. & Pine Hill Rd. | Auburn |
| Pole | | 230 Pine Hill Rd. | Auburn |
| Pole | | 280 Pine Hill Rd. | Auburn |
| Pole | | 5681 Gold Leaf Ln. | Placerville |
| Pole | | 1061 Bridgeview Ln. | Placerville |
| Pole | | 131 Bluejay Dr. | Placerville |
| Pole | | 140 Bluejay Dr. | Placerville |
| Pole | | I/O 12 Oaks Ln. & Bluejay Dr. | Placerville |
| Pole | | 3121 12 Oaks Ln. | Placerville |

| Structure Type | Structure Number | Address | City |
|-------------------------|------------------|---|-------------|
| Pole | | 3101 12 Oaks Ln. | Placerville |
| Pole | | 3080 12 Oaks Ln. | Placerville |
| Pole | | 1050 Bridgeview Ln. | Placerville |
| Pole | | 1044 Bridgeview Ln. | Placerville |
| Pole | | 3301 Dusty Gold Ln. | Placerville |
| Pole | | 1091 Harris Rd. | Placerville |
| Pole | | I/O Excelsior Rd. & Big Cut Rd. | Placerville |
| Pole | | 3374 Big Cut Rd. | Placerville |
| Pole | | 3381 Big Cut Rd. | Placerville |
| Pole | | 3377 Grice Ln. | Placerville |
| Pole | | 3340 Big Cut Rd. | Placerville |
| Padmounted Transformer | T-85007 | 4404 Mesquite Way | Rocklin |
| Padmounted Transformer | T-36639 | 5649 Black Willow Ct. | Rocklin |
| Padmounted Transformer | T-46860 | 5628 Black Willow St. | Rocklin |
| Padmounted Transformer | T-61686 | 5608 Black Willow St. | Rocklin |
| Subsurface Junction Box | J-99441 | I/O Black Willow St. & Silver Lupine Ln. | Rocklin |
| Padmounted Switch | SW-66644 | I/O Black Willow St. & Lake Pointe Dr. | Rocklin |
| Padmounted Switch | SW-47276 | I/O Black Willow St. & Lake Pointe Dr. | Rocklin |
| Padmounted Switch | SW-91866 | I/O Black Willow St. & Lake Pointe Dr. | Rocklin |
| Padmounted Switch | SW-81210 | I/O Black Willow St. & Lake Pointe Dr. | Rocklin |
| Padmounted Transformer | T-27385 | Across from 4205 Silver Lupine Ln. | Rocklin |
| Subsurface Splice Box | | 4212 Silver Lupine Ln. | Rocklin |
| Padmounted Transformer | T-39388 | 5705 Nolina St. | Rocklin |
| Subsurface Junction Box | J-16715 | I/O Silver Lupine Ln. & Desert Mallow St. | Rocklin |
| Padmounted Transformer | T-27462 | 5667 Black Willow Ct. | Rocklin |
| Padmounted Transformer | T-0633 | 3540 Parkview Ln. | Rocklin |
| Pole | 100058010 | 5115 4 th St. | Rocklin |
| Padmounted Transformer | T-2317 | 5609 Bolton Way | Rocklin |

| Structure Type | Structure Number | Address | City |
|------------------------|------------------|---------------------|---------|
| Subsurface Handhole | | 5431 Paragon Ct. | Rocklin |
| Padmounted Transformer | T-2251 | 5412 Allan Ct. | Rocklin |
| Padmounted Transformer | T-2191 | 5829 Tweedsmuir Dr. | Rocklin |
| Padmounted Transformer | T-2196 | 5914 Allan Dr. | Rocklin |

IV. Field Inspection Violations

ESRB staff observed the following violations during the field inspection:

1. GO 95, Rule 54.6-B, Vertical and Lateral Conductors, Ground Wires states in part:

"...That portion of the ground wire attached on the face or back of wood cross arms or on the surface of wood poles and structures shall be covered by a suitable protective covering (see Rule 22.8)..."

The following poles located at the below addresses had exposed and/or damaged ground moulding:

- 110 Cary Dr., Auburn
- 13260 Luther Rd., Auburn

2. GO 95, Rule 56.2, Use states in part:

"Where mechanical loads imposed on poles, towers, or structures are greater than can be supported with safety factors as specified in Rule 44, additional strength shall be provided by the use of guys or other suitable construction.

Where guys are used with poles or similar structures capable of considerable deflection before failure, the guys shall be able to support the entire load, the pole below the point of guy attachment acting merely as a strut.

Guys shall be attached to structures, as nearly as practicable, at the center of load. They shall be maintained taut and of such strength as to meet the safety factors of Rule 44."

The pole located at 3374 Big Cut Rd., Placerville had slack on the primary down guy.

Exhibit 61

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



July 31, 2018

EA2018-800

Dean McFarren
Manager – EAM Distribution Compliance
Pacific Gas and Electric Company (PG&E)
1850 Gateway Blvd., 5th Floor, Room 5053C
Concord, CA 94520

SUBJECT: Electric Distribution Audit of PG&E Sonoma Division

Mr. McFarren:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Ivan Garcia, Chris Lee, and Charles Mee of ESRB staff conducted an electric distribution audit of PG&E's Sonoma Division from May 14, 2018 through May 18, 2018. During the audit, ESRB staff conducted field inspections of PG&E's facilities and equipment and reviewed pertinent documents and records.

During the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response within 30 days of your receipt of this letter indicating all corrective actions and preventive measures taken or planned to address the violations to ensure compliance with GO requirements. The response should indicate the date of each remedial action and preventive measure completed within 30 days. For any outstanding items not addressed within 30 days, please provide the projected completion dates of all actions for all violations outlined in Sections II & IV of the enclosed Audit Findings.

If you have any questions concerning this audit, please contact Ivan Garcia at (916) 928-5875 or ivan.garcia@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Banu Acemis", written over a horizontal line.

Banu Acemis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosure: CPUC Audit Findings

Cc: Elizaveta Malashenko, Director, Safety and Enforcement Division, CPUC
Lee Palmer, Deputy Director, Office of Utility Safety, SED, CPUC
Charlotte TerKeurst, Program Manager, ESRB, CPUC
Ryan Yamamoto, Senior Utilities Engineer – Supervisor, ESRB, CPUC
Ivan Garcia, Utilities Engineer, ESRB, CPUC

AUDIT FINDINGS

I. Records Review

During the audit, ESRB staff reviewed the following records:

- Reliability Metrics from April 2013 to March 2018
- Patrol and Inspection Records from April 2013 to March 2018
- Completed Corrective Action Work Orders from April 2017 to March 2018
- Cancelled Corrective Action Work Orders from April 2017 to March 2018
- Pending Corrective Action Work Orders from April 2018 to March 2018
- Pole Loading Calculations from December 2016 to April 2018
- New Construction Projects from April 2017 to March 2018
- Third Party Notification Records from April 2013 to March 2018
- Diagnostic Equipment Testing Records from January 2015 to December 2017
- PG&E Sonoma Inspector Training Records from January 2013 to April 2018
- PG&E's Internal Audit Summary for Sonoma Division in 2014, 2015, and 2017.
- PG&E's Compliance Supervisor Work Verification for Sonoma Division from January 2017 to April 2018

II. Records Violations

ESRB staff observed the following violations during the record review portion of the audit:

1. GO 95, Rule 18-A2a states in part:

"All companies shall establish an auditable maintenance program for their facilities and lines. All companies must include a timeline for corrective actions to be taken following the identification of a Safety Hazard or nonconformances with General Order 95 on the company's facilities."

GO 95, Rule 31.1, Design, Construction and Maintenance states in part:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."

"For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment."

GO 128, Rule 17.1, Design, Construction and Maintenance states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of [the] communication or supply lines and equipment.”

ESRB staff reviewed late work orders and determined that PG&E did not address a total of 405 work orders by the assigned due date.

2. GO 128, Rule 17.2, Inspection states in part:

“Systems shall be inspected by the operator frequently and thoroughly for the purpose of insuring that they are in good condition and in conformance with all applicable requirements these rules.”

GO 165, Section III-B, Standards for Inspection states in part:

“Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table 1.”

ESRB noted that PG&E completed the underground inspection for the following map past their assigned due date:

Map II2909 – Inspection due on June 8, 2017. PG&E completed the inspection on December 1, 2017.

III. Field Inspection

The following are the facilities we inspected during the field inspection:

| Structure Type | Structure Number | Address | City |
|------------------------|------------------|---|-------------|
| Pole | 101977652 | 8339 W. Dry Creek Rd. | Healdsburg |
| Pole | | Across from 8339 W. Dry Creek Rd. | Healdsburg |
| Pole | 120186764 | 8339 W. Dry Creek Rd. | Healdsburg |
| Pole | 102033317 | Across from 8339 W. Dry Creek Rd. | Healdsburg |
| Pole | 102033319 | 8383 W. Dry Creek Rd. | Healdsburg |
| Pole | | 1 pole north of 8383 W. Dry Creek Rd. | Healdsburg |
| Pole | | 173 Presidential Circle | Healdsburg |
| Pole | | 2579 North Fitch Mountain Rd. | Healdsburg |
| Pole | | Across from 2567 N. Fitch Mountain Rd. | Healdsburg |
| Pole | | 2567 N Fitch Mountain Rd. | Healdsburg |
| Pole | | 1 pole west of 2567 N. Fitch Mountain Rd. | Healdsburg |
| Pole | | 2439 N. Fitch Mountain Rd. | Healdsburg |
| Pole | | 2414 N. Fitch Mountain Rd. | Healdsburg |
| Pole | | 14475 Cherry St. | Guerneville |
| Pole | | 14507 Cherry St. | Guerneville |
| Pole | 120092847 | 14509 Cherry St. | Guerneville |
| Pole | | 14514 Cherry St. | Guerneville |
| Pole | | 14551 Cherry St. | Guerneville |
| Pole | | 14576 Cherry St. | Guerneville |
| Pole | | 14615 Cherry St. | Guerneville |
| Pole | | 20406 Bohemian Highway | Monte Rio |
| Pole | | 13450 Pocket Dr. | Guerneville |
| Padmounted Transformer | T4664 | 334 O'Hair Ct. | Santa Rosa |
| Padmounted Transformer | T3241 | 327 O'Hair Ct. | Santa Rosa |
| Padmounted Transformer | T4944 | 2999 Dutton Ave. | Santa Rosa |
| Padmounted Transformer | T6884 | 2995 Dutton Ave. | Santa Rosa |
| Padmounted Transformer | T3514LB | 3017 Dutton Ave. | Santa Rosa |
| Padmounted Transformer | T6977 | 3020 Dutton Ave. | Santa Rosa |
| Pole | 101951335 | 933 Dutton Ave. | Santa Rosa |
| Pole | | 940 Dutton Ave. | Santa Rosa |
| Pole | | 519 Earle St. | Santa Rosa |
| Pole | | 3575 Valley View Dr. | Santa Rosa |

| | | | |
|------|-----------|----------------------------------|------------|
| Pole | | 4445 Yukon Dr. | Santa Rosa |
| Pole | | 2600 Trinity Rd. | Glen Ellen |
| Pole | | 1 pole north of 2600 Trinity Rd. | Glen Ellen |
| Pole | | 2585 Trinity Rd. | Glen Ellen |
| Pole | | 2575 Trinity Rd. | Glen Ellen |
| Pole | 120041091 | 1 pole next to 2575 Trinity Rd. | Glen Ellen |
| Pole | | 13285 Arnold Dr. | Glen Ellen |
| Pole | | 12350 Margie Ln. | Glen Ellen |
| Pole | | 1 Morning Sun Dr. | Petaluma |
| Pole | | 115 Sunny Hill Dr. | Petaluma |
| Pole | | 116 Sunny Hill Dr. | Petaluma |
| Pole | | 120 Sunny Hill Dr. | Petaluma |
| Pole | | 125 Sunny Hill Dr. | Petaluma |
| Pole | | 523 Webster St. | Petaluma |
| Pole | | 858 Cherry St. | Petaluma |
| Pole | | 819 Chileno Valley Rd. | Petaluma |
| Pole | | 628 N. Fair St. | Petaluma |

IV. Field Inspection Violations

ESRB staff observed the following violations during the field inspection:

1. GO 95, Rule 56.2, Use of Overhead Guys, Anchor Guys and Span Wires states in part:

"Guys shall be attached to structures, as nearly as practicable, at the center of load. They shall be maintained taut and of such strength as to meet the safety factors of Rule 44."

The pole located at 2585 Trinity Rd., in Glen Ellen had a primary guy wire that was not taut.

2. GO 95, Rule 56.7-B, Location of Sectionalizing Insulators for Anchor Guys states in part:

"In order to prevent trees, buildings, messengers, metal-sheathed cables or other similar objects from grounding portions of guys above guy insulators, it is suggested that anchor guys be sectionalized, where practicable, near the highest level permitted by this Rule."

The following poles located at the below addresses had vegetation in contact with a section above the sectionalizing insulator of the anchor guy:

- 2567 N. Fitch Mountain Rd., Healdsburg
- 120 Sunny Hill Dr., Petaluma

3. GO 95, Rule 54.6-B, Vertical and Lateral Conductors, Ground Wires states in part:

"...That portion of the ground wire attached on the face or back of wood cross arms or on the surface of wood poles and structures shall be covered by a suitable protective covering (see Rule 22.8)..."

The following poles located at the below addresses had exposed and/or damaged ground molding:

- 14615 Cherry St., Guerneville
- 1 Morning Sun Dr., Petaluma
- 116 Sunny Hill Dr., Petaluma

4. GO 95, Rule 56.9, Guy Marker states:

"A substantial marker of suitable material, including but not limited to metal or plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. Where more than one guy is attached to an anchor rod, only the outermost guy is required to have a marker."

A pole located across from W. Dry Creek Rd. in Healdsburg had an anchor guy with a broken guy marker.

A pole located at 2585 Trinity Rd. in Glen Ellen had an anchor guy with a broken guy marker.

5. GO 95, Rule 56.4-C4, Clearances From Conductors Passing on Same Poles states in part:

"The radial clearances between guys and conductors supported by or attached to the same poles or cross arms shall not be less than as specified in Table 2, Case 19." – Column C, 3 inches."

A pole located at 2439 N. Fitch Mountain Rd. in Healdsburg had an anchor guy wire in contact with the communication cable.

6. GO 95, Rule 54.8-B2b, Minimum Vertical Ground Clearance on Residential Premises states:

"Over private driveways or lanes or other private property areas accessible to vehicles on premise used for residential purposes only, service drops shall have a vertical clearance not less than 12 feet."

A pole located at 14509 Cherry St. in Guerneville had a service drop with a vertical ground clearance measured at 9 feet and 8 inches above the driveway.

A pole located at 940 Dutton Ave. in Santa Rosa had a service drop with a vertical ground clearance measured at 9 feet and 2 inches above the driveway.

7. GO 95, Rule 35, Vegetation Management states in part:

"When a supply or communication company has actual knowledge, obtained either through normal operating practices or notification to the company, that dead, rotten or diseased trees or dead, rotten or diseased portions of otherwise healthy trees overhang or lean toward and may fall into a span of supply or communication lines, said trees or portions thereof should be removed."

A dead pine tree is leaning and has the potential to bring down PG&E's electric facilities at 13285 Arnold Dr. in Glen Ellen. In reviewing EC Notification #111868261, PG&E has documented this issue but has listed this notification as being cancelled.

8. GO 95, Rule 31.1 Design, Construction and Maintenance states in part:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."

A pole located at 14576 Cherry St. in Guerneville had a primary cross arm that was rotten.

A pole located at 20406 Bohemian Highway in Monte Rio is broken at the communication level.

A pole located at 2600 Trinity Rd. in Glen Ellen has woodpecker damage.

A pole located at 115 Sunny Hill Dr. in Petaluma has an anchor guy in contact with the secondary crossarm.

A pole located at 116 Sunny Hill Dr. in Petaluma has an anchor guy in contact with the primary crossarm.

A pole located at 14475 Cherry St. in Guerneville has an anchor guy anchor buried in the ground.

A pole located at 1 Morning Sun Drive in Petaluma has an anchor guy anchor buried in the ground.

Exhibit 62

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



September 6, 2018

EA2018-801

Dean McFarren
Manager – EAM Distribution Compliance
Pacific Gas and Electric Company (PG&E)
1850 Gateway Blvd., 5th Floor, Room 5053C
Concord, CA 94520

SUBJECT: Audit of PG&E's Humboldt Division

Mr. McFarren:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Brandon Vazquez of ESRB staff conducted an electric distribution audit of PG&E's Humboldt Division from June 18 through June 22, 2018. During the audit, ESRB staff conducted field inspections of PG&E's facilities and equipment and reviewed pertinent documents and records.

During the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response within 30 days of your receipt of this letter indicating all corrective actions and preventive measures, taken or planned, to address the violations to ensure compliance with GO requirements. The response should indicate the date of each remedial action and preventive measure completed within 30 days. For any outstanding items not addressed within 30 days, please provide the projected completion dates of all actions for the violations outlined in Sections II & IV of the enclosed Audit Findings.

If you have any questions concerning this audit, please contact Brandon Vazquez at (415) 703-1076 or brandon.vazquez@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Banu Acimis'.

Banu Acimis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosure: CPUC Audit Findings

Cc: Elizaveta Malashenko, Director, Safety and Enforcement Division, CPUC
Lee Palmer, Deputy Director, Office of Utility Safety, SED, CPUC
Charlotte TerKeurst, Program Manager, ESRB, CPUC
Rickey Tse, Senior Utilities Engineer- Supervisor, ESRB, CPUC
Brandon Vazquez, Utilities Engineer, ESRB, CPUC

AUDIT FINDINGS

I. Records Review

During the audit, ESRB staff reviewed the following records:

- Completed and cancelled work orders in the last 12 months
- Completed, cancelled, and pending late work orders in the last 60 months
- Patrol and detailed inspection records in the last 60 months
- Pole loading calculations in the last 12 months
- Third party notifications received and sent out in the last 12 months
- Reliability metrics such as System Average Interruption Duration Index, System Average Interruption Frequency Index, and Customer Average Interruption Duration Index and outage reports for each feeder in the division in the last 60 months
- Sustained outages in the division in the last 60 months
- New construction projects in the last 12 months
- Completed, deferred, and delayed equipment test records in the last three years

II. Records Violations

ESRB staff observed the following violations during the record review portion of the audit:

1. GO 95, Rule 18-A2a states in part:

"All companies shall establish an auditable maintenance program for their facilities and lines. All companies must include a timeline for corrective actions to be taken following the identification of a Safety Hazard or nonconformances with General Order 95 on the company's facilities."

GO 95, Rule 31.1, Design, Construction and Maintenance states in part:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment."

GO 128, Rule 17.1, Design, Construction and Maintenance states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of [the] communication or supply lines and equipment.”

ESRB staff reviewed late work orders and determined that PG&E did not address a total of 489 work orders by their assigned due dates.

2. GO 128, Rule 17.2, Inspection states in part:

“Systems shall be inspected by the operator frequently and thoroughly for the purpose of insuring that they are in good condition and in conformance with all applicable requirements these rules.”

GO 165, Section III-B, Standards for Inspection states in part:

“Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table 1.”

ESRB noted that PG&E completed underground inspections for the following maps past their assigned due date:

1. Map JJ17 – Inspection was due on December 31, 2013. PG&E completed the inspection on January 8, 2014.
2. Map X3008 – Inspection was due on October 7, 2016. PG&E completed the inspection on December 8, 2016.
3. Map BB3019 – Inspection was due on July 28, 2017. PG&E completed their inspection on September 21, 2017.

III. Field Inspection

During the field inspection, ESRB staff inspected the following facilities:

| Location | Structure Type | Structure Number | Address | City |
|----------|----------------------|------------------|--|-------------|
| 1 | Pole | | 5200 Branscomb Rd. (SM-18469) | Laytonville |
| 2 | Pole | | 5200 Branscomb Rd. | Laytonville |
| 3 | Pole | | Baechtel Rd. & S Main St. | Willits |
| 4 | Pole | | Baechtel Rd. & S Main St. | Willits |
| 5 | Pole | | Baechtel Rd. & S Main St. | Willits |
| 6 | Pole | | Baechtel Rd. & S Main St. | Willits |
| 7 | Pole | | Baechtel Rd. & S Main St. (F-6753) | Willits |
| 8 | Pole | | 90 Baechtel Rd. | Willits |
| 9 | Pole | | Baechtel Rd. (Capacitor Bank 646) | Willits |
| 10 | Pole | | 180 Baechtel Rd. | Willits |
| 11 | Pole | | Willow Ln. (SM-21834) | Willits |
| 12 | Pole | | 1440 Willow Ln. | Willits |
| 13 | Pole | | 1470 Willow Ln. | Willits |
| 14 | Pole | | 600 S Main St. | Willits |
| 15 | Pole | | 2 Spans Past F-7659 | Willits |
| 16 | Pole | 120170585 | Live Oak Rd. | Willits |
| 17 | Pole | | Across from 4101 Chinquapin Rd. | Willits |
| 18 | Pole | | 4101 Chinquapin Rd. | Willits |
| 19 | Pole | | Adjacent to 3990 Chinquapin Rd. | Willits |
| 20 | Pole | | 18200 Walker Rd. | Willits |
| 21 | Pole | | 1 Span Past 18200 Walker Rd. | Willits |
| 22 | Pole | | 18590 Walker Rd. | Willits |
| 23 | Pole | | 18300 Walker Rd. | Willits |
| 24 | Padmount Transformer | T-1132 | 160 Parducci Rd. | Ukiah |
| 25 | Pole | | 160 Parducci Rd. (F-6669) | Ukiah |
| 26 | Pole | | 160 Parducci Rd. (1 Span Past F-6669) | Ukiah |
| 27 | Pole | 110089349 | 160 Parducci Rd. | Ukiah |
| 28 | Pole | | Adjacent to 160 Parducci Rd. | Ukiah |
| 29 | Pole | | Near Tollini Ln. & W Lake Mendocino Dr. | Ukiah |

| Location | Structure Type | Structure Number | Address | City |
|----------|------------------------|------------------|--|----------------|
| 30 | Junction Box | J-0102 | 3322 Hamby Ford Rd. | Ukiah |
| 31 | Padmount Transformer | T-1816 | 3332 N State St. | Ukiah |
| 32 | Padmount Transformer | T-2147 | 3342 N State St. | Ukiah |
| 33 | Pole | 120122701 | 97115 Hensley Creek Rd. | Ukiah |
| 34 | Subsurface Transformer | T-915 | 1300 Vista Verde | Ukiah |
| 35 | Subsurface Transformer | T-1201 | 1250 Vista Verde | Ukiah |
| 36 | Subsurface Transformer | T-1202 | 1180 Vista Verde | Ukiah |
| 37 | Pole | | Near 226 Vichy Springs Rd. (1 Span Past SW-835) | Ukiah |
| 38 | Pole | | Near 226 Vichy Springs Rd. (SW-835) | Ukiah |
| 39 | Pole | | 226 Vichy Springs Rd. (SW-1995) | Ukiah |
| 40 | Pole | | 1140 Vichy Springs Rd. | Ukiah |
| 41 | Pole | 110427331 | N Orchard St. | Ukiah |
| 42 | Pole | | N Orchard St. (1 Span Across of 110427331) | Ukiah |
| 43 | Pole | | 11807 West Rd. | Redwood Valley |
| 44 | Pole | | 3 Poles W/O Tomki Rd. | Redwood Valley |
| 45 | Pole | | 5 Poles W/O Tomki Rd. | Redwood Valley |
| 46 | Pole | | 2 Poles W/O Tomki Rd. | Redwood Valley |
| 47 | Pole | | 12301 Tomki Rd. | Redwood Valley |
| 48 | Pole | | 3 Poles E/O 6831 N State St. | Redwood Valley |
| 49 | Pole | | 6691 N State St. | Redwood Valley |
| 50 | Pole | | 775 HWY 20 | Upper Lake |
| 51 | Pole | | 5180 Lakeshore Blvd. | Lakeport |
| 52 | Pole | | 1172 Mellor Dr. | Lakeport |
| 53 | Pole | | 1343 Mellor Dr. | Lakeport |
| 54 | Pole | | 1422 Mellor Dr. | Lakeport |
| 55 | Pole | | 1468 Mellor Dr. | Lakeport |
| 56 | Pole | | 1554 Mellor Dr. | Lakeport |

| Location | Structure Type | Structure Number | Address | City |
|----------|----------------------|------------------|----------------------------------|-------------|
| 57 | Padmount Transformer | T-979 | 1046 Adams St. | Lakeport |
| 58 | Pole | | 5 th St on Forbes St. | Lakeport |
| 59 | Pole | | 385 Forbes St. | Lakeport |
| 60 | Pole | | 422 Konocti Ave. | Lakeport |
| 61 | Pole | | 420 Konocti Ave. | Lakeport |
| 62 | Pole | | 342 Konocti Ave. (F-3032) | Lakeport |
| 63 | Pole | | 250 Konocti Ave. | Lakeport |
| 64 | Pole | | 902 S Forbes St. (F-5517) | Lakeport |
| 65 | Pole | | 926 S Forbes St. | Lakeport |
| 66 | Pole | | 1 Span Past 926 S Forbes St. | Lakeport |
| 67 | Pole | | 2 Spans Past 926 S Forbes St. | Lakeport |
| 68 | Pole | | 1150 Osprey St. | Lakeport |
| 69 | Pole | | Across from 1150 Osprey St. | Lakeport |
| 70 | Pole | | 610 Yellow Hammer Ln. | Lakeport |
| 71 | Pole | | 6805 Kelsey Creek Rd. | Kelseyville |
| 72 | Pole | | 7296 Wight Way | Kelseyville |
| 73 | Pole | | 7460 Kelsey Creek Rd. | Kelseyville |
| 74 | Pole | 120044022 | 9935 Lake St. | Lower Lake |
| 75 | Pole | 120122744 | 1 Pole S/O 9985 Lake St. | Lower Lake |
| 76 | Pole | 120122743 | 9840 Lake St. | Lower Lake |
| 77 | Pole | 120103154 | 9775 Lake St. | Lower Lake |
| 78 | Pole | 110385199 | 9725 Lake St. | Lower Lake |

IV. Field Inspection Violations

ESRB staff observed the following violations during the field inspection:

1. GO 95, Rule 31.1, Design, Construction, and Maintenance states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.”

The pole at Location 3 at the intersection of Baechtel Rd. and S Main St., Willits had damaged visibility strips.

The poles at the following locations had a damaged crossarm:

- Location 10 at 180 Baechtel Rd., Willits
- Location 52 at 1172 Mellor Dr., Lakeport

The poles at the following locations were damaged:

- Location 1 at 5200 Branscomb Rd., Laytonville had cracking and woodpecker damage at the top half of the pole.
- Location 7 at the intersection of Baechtel Rd. and S Main St., Willits had cracking and a hole at the top of the pole.
- Location 11 on Willow Ln., Willits had wood pecker holes.

The poles at the following locations had vegetation contact at or above the anchor guy insulator:

- Location 10 at 180 Baechtel Rd., Willits
- Location 20 at 18200 Walker Rd., Willits
- Location 49 at 6691 N State St., Redwood Valley

The pole at Location 39 at 226 Vichy Springs Rd., Ukiah had a broken primary insulator pin.

2. GO 95, Rule 51.6-A, Marking and Guarding, High Voltage Marking of Poles states in part:

“Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words “HIGH VOLTAGE”, or pair of signs showing the words “HIGH” and “VOLTAGE”, not more than six (6) inches in height with letters not less than 3 inches in height. A pair of signs may be stacked to a height of no more than 12 inches. Such signs shall be of weather and corrosion-resisting material, solid or with letters cut out therefrom and clearly legible...”

The poles at the following locations had a missing or damaged High Voltage sign:

- Locations 3, 4, and 6 at the intersection of Baechtel Rd. and S Main St., Willits
- Location 39 at 226 Vichy Springs Rd., Ukiah
- Location 72 at 7296 Wight Way, Kelseyville

3. GO 95, Rule 56.9, Guy Marker (Guy Guard) states:

“A substantial marker of suitable material, including but not limited to metal or plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. Where more than one guy is attached to an anchor rod, only the outermost guy is required to have a marker.”

The pole at Location 10 at 180 Baechtel Rd., Willits had a damaged guy marker.

4. GO 128, Rule 12.2, Maintenance states in part:

“Systems shall be maintained in such condition as to secure safety to workmen and the public in general. Systems and portions thereof constructed, reconstructed, or replaced on or after the effective date of these rules shall be kept in conformity with the requirement of these rules.”

The junction box, J-0102, at Location 30 at 3322 Hamby Ford Rd., Ukiah had damaged visibility strips, broken fault indicators, and vegetation obstruction.

The padmount transformer, T-979, at Location 57 at 1046 Adams St., Lakeport had damaged silicone tape on a primary 12 kV cable.

Exhibit 63

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



October 25, 2018

EA2018-814

Dean McFarren
Manager – EAM Distribution Compliance
Pacific Gas and Electric Company (PG&E)
1850 Gateway Blvd., 5th Floor, Room 5053C
Concord, CA 94520

SUBJECT: Audit of PG&E's Los Padres Division

Mr. McFarren:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Ivan Garcia, Chris Lee, Stephen Lee, and Anwar Safvi of ESRB staff conducted an electric distribution audit of PG&E's Los Padres Division from August 20, 2018 to August 23, 2018. During the audit, ESRB staff conducted field inspections of PG&E's facilities and equipment and reviewed pertinent documents and records.

During the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response within 30 days of your receipt of this letter indicating all corrective actions and preventive measures, taken or planned, to address the violations to ensure compliance with GO requirements. The response should indicate the date of each remedial action and preventive measure completed within 30 days. For any outstanding items not addressed within 30 days, please provide the projected completion dates of all actions for all violations outlined in Sections II & IV of the enclosed Audit Findings.

If you have any questions concerning this audit, please contact Ivan Garcia at 916-928-5875 or ivan.garcia@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Banu Acimis'.

Banu Acimis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Enclosure: CPUC Audit Findings

Cc: Elizaveta Malashenko, Director, Safety and Enforcement Division, CPUC
Lee Palmer, Deputy Director, Office of Utility Safety, SED, CPUC
Charlotte TerKeurst, Program Manager, ESRB, CPUC
Rick Tse, Senior Utilities Engineer – Supervisor, ESRB, SED, CPUC
Ivan Garcia, Utilities Engineer, ESRB, SED, CPUC

AUDIT FINDINGS

I. Records Review

During the audit, ESRB staff reviewed the following records:

- Completed, cancelled, and pending late work orders in the last 60 months
- Patrol and detailed inspection records from July 1, 2013 to June 29, 2018
- Reliability metrics and outage report for each feeder in the division from 2013 to 2018
- Sustained outages in the division from 2013 to 2018
- New Construction projects in the last 12 months
- Pole loading calculations in the last 12 months
- Third party notifications sent and received in the last 60 months
- Equipment test records in the last 36 months
- Deferred equipment test records in the last 36 months
- Work verification records in the last 12 months

II. Records Violations

ESRB staff observed the following violations during the record review portion of the audit:

1. GO 95, Rule 18-B, Maintenance Programs states in part:

"Each company (including electric utilities and communications companies) shall establish and implement an auditable maintenance program for its facilities and lines for the purpose of ensuring that they are in good condition so as to conform to these rules. Each company must describe in its auditable maintenance program the required qualifications for the company representatives who perform inspections and/or who schedule corrective actions. Companies that are subject to GO 165 may maintain procedures for conducting inspections and maintenance activities in compliance with this rule and with GO 165."

GO 95, Rule 31.1, Design, Construction and Maintenance states in part:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment."

GO 128, Rule 17.1, Design, Construction and Maintenance states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of [the] communication or supply lines and equipment.”

ESRB staff reviewed late work orders and determined that PG&E did not address a total of 285 work orders by the assigned due date. Of these 285 work orders, 239 were classified as “late” and 46 were classified as “late-exempt”.

Per GO 95, Rule 18B(1)(b), *“Correction times may be extended under reasonable circumstances, such as: third party refusal, customer issue, no access, permits required, system emergencies (e.g. fires, severe weather conditions)”*. PG&E classifies work orders under these circumstances as “late-exempt” as they are exempted from completion by their assigned due date.

2. GO 95, Rule 31.2, Inspection of Lines states in part:

“Lines shall be inspected frequently and thoroughly for the purpose of insuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard.”

GO 165, Section III-B, Standards for Inspection states:

“Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table 1.”

ESRB staff noted that PG&E completed overhead inspection for the following map past their assigned due date:

1. Map BB29 – Inspection was due on October 23, 2014. PG&E completed the inspection on November 5, 2014.

3. GO 128, Rule 17.2, Inspection states in part:

“Systems shall be inspected by the operator frequently and thoroughly for the purpose of insuring that they are in good condition and in conformance with all applicable requirements these rules.”

GO 165, Section III-B, Standards for Inspection states in part:

“Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high-quality, and safe operation, but in no case may the period between inspections (measured in years) exceed the time specified in Table 1.”

ESRB staff noted that PG&E completed underground inspections for the following map past their assigned due date:

1. Map JJ3408– First detailed inspection was due in 1995. PG&E completed the inspection on June 4, 2014.
2. Map UU3917– Inspection was due on April 24, 2014. PG&E completed the inspection on September 19, 2014.
3. Map TT3922– Inspection was due on April 10, 2014. PG&E completed the inspection on October 8, 2014.
4. Map UU3824– Inspection was due on April 16, 2014. PG&E completed the inspection on October 30, 2014.
5. Map TT3912 – Inspection was due on April 10, 2014. PG&E completed the inspection on November 13, 2014.
6. Map UU3805 – Inspection was due on April 11, 2014. PG&E completed the inspection on November 5, 2014.
7. Map UU3906 – Inspection was due on April 23, 2014. PG&E completed the inspection on November 13, 2014.
8. Map UU3909– Inspection was due on April 23, 2014. PG&E completed the inspection on November 14, 2014.
9. Map UU3911– Inspection was due on April 23, 2014. PG&E completed the inspection on November 14, 2014.
10. Map UU3914– Inspection was due on April 23, 2014. PG&E completed the inspection on November 14, 2014.
11. Map UU3916– Inspection was due on April 25, 2014. PG&E completed the inspection on November 5, 2014.
12. Map UU3921– Inspection was due on April 16, 2014. PG&E completed the inspection on November 14, 2014.
13. Map VV3805– Inspection was due on April 28, 2014. PG&E completed the inspection on November 18, 2014.
14. Map VV3913– Inspection was due on June 3, 2014. PG&E completed the inspection on November 17, 2014.

III. Field Inspection

During the field inspection, ESRB staff inspected the following facilities:

| Structure Type | Structure Number | Address | City |
|-------------------------|------------------|--------------------------------------|------------|
| Pole | | 197 Pacific Avenue | Cayucos |
| Pole | | 40 2nd Street | Cayucos |
| Pole | | 60 2nd Street | Cayucos |
| Pole | | In front of 60 2nd Street | Cayucos |
| Pole | | 51 2nd Street | Cayucos |
| Pole | | 200 South Ocean Avenue | Cayucos |
| Pole | | 61 North 3rd Street | Cayucos |
| Pole | | 182 J Street | Cayucos |
| Pole | | 198 J Street | Cayucos |
| Pole | | 245 Bakersfield Avenue | Cayucos |
| Pole | | 299 Bakersfield Avenue | Cayucos |
| Pole | | 191 Park Avenue | Cayucos |
| Pole | | Rear of 183 Park Avenue | Cayucos |
| Pole | | 188 I Street | Cayucos |
| Pole | | 124 Saint Marry Avenue | Cayucos |
| Pole | | 5550 El Camino Real | Atascadero |
| Pole | | 5550 El Camino Real (Service Drop) | Atascadero |
| Pad mounted Transformer | T-2120 | 1120 Count Fleet Street (T2120) | Santa Ynez |
| Pad mounted Transformer | T-2119 | 1120 Count Fleet Street (T2119) | Santa Ynez |
| Pad mounted Transformer | T-2074 | 1120 Count Fleet Street (T2074) | Santa Ynez |
| Subsurface Junction Box | J-11289 | 1120 Count Fleet Street (J11289) | Santa Ynez |
| Pole | | 1120 Count Fleet Street (Pole 11289) | Santa Ynez |
| Subsurface Splice Box | | 1890 Westerly | Santa Ynez |
| Pad mounted Transformer | | 376 Avenue of the Flags | Santa Ynez |
| Subsurface Transformer | | 51 E Hwy 246 | Buellton |
| Pad mounted Transformer | T-2301 | 51 E Hwy 246 | Buellton |
| Pole | | C/O 20611 on Coyote Creek | Buellton |
| Pad mounted Transformer | T-2059 | 1301 Cougar Ridge Road (T2059) | Solvang |
| Pole | | R/O 1568 Calle Nueve | Buellton |

| Structure Type | Structure Number | Address | City |
|----------------|------------------|---|--------|
| Pole | | 1458 Calle Marana | Lompoc |
| Pole | | 4048 Draco Drive | Lompoc |
| Pole | | 4058 Draco Drive | Lompoc |
| Pole | | 4068 Draco Drive | Lompoc |
| Pole | | 1420 14th Street | Oceano |
| Pole | | 1435 14th Street | Oceano |
| Pole | | 1447 14th Street | Oceano |
| Pole | | 1491 14th Street | Oceano |
| Pole | | 1501 14th Street | Oceano |
| Pole | | 1523 14th Street | Oceano |
| Pole | | 1599 14th Street | Oceano |
| Pole | | 1508 Warner Street | Oceano |
| Pole | | 1599 15th Street | Oceano |
| Pole | | 1531 15th Street | Oceano |
| Pole | | 1503 15th Street | Oceano |
| Pole | | 1473 15th Street | Oceano |
| Pole | | 1447 15th Street | Oceano |
| Pole | | 1423 15th Street | Oceano |
| Pole | | Corner of 15th Street and Wilmar Ave | Oceano |
| Pole | | Corner of 14th Street and Wilmar Ave | Oceano |
| Pole | | 1375 18th Street | Oceano |
| Pole | | 1349 18th Street | Oceano |
| Pole | | 1310 18th Street | Oceano |
| Pole | | 1800 The Pike | Oceano |
| Pole | | Across from 1800 The Pike | Oceano |
| Pole | | 1848 The Pike | Oceano |
| Pole | | Across from 1898 The Pike | Oceano |
| Pole | | Intersection of The Pike and 19th Street | Oceano |
| Pole | | Across from 1310 19th Street | Oceano |
| Pole | | Across from 1330 19th Street | Oceano |
| Pole | | Mid Span 1346 19th Street | Oceano |
| Pole | | Across from 1362 19th Street | Oceano |
| Pole | | 1362 19th Street | Oceano |
| Pole | | 1372 19th Street | Oceano |
| Pole | | 1382 19th Street (Mid Span) | Oceano |
| Pole | | 1871 Wilmar Avenue | Oceano |
| Pole | | Intersection of 19th Street and Wilmar Avenue | Oceano |
| Pole | | Across from 1821 Wilmar Avenue | Oceano |
| Pole | | 1731 Wilmar Avenue | Oceano |

| Structure Type | Structure Number | Address | City |
|-------------------------|------------------|-------------------------------|-------------|
| Pole | | 1380 18th Street | Oceano |
| Pole | | 1395 18th Street | Oceano |
| Pole | | Rear of 364 Valley View Drive | Santa Maria |
| Pole | | Stowell Road and Victoria Pl. | Santa Maria |
| Pole | | Rear of 1120 Railroad | Santa Maria |
| Pole | 110326169 | Rear of 1126 Railroad | Santa Maria |
| Pad mounted Transformer | T-2821 | 520 Farnel Road (T2821) | Santa Maria |
| Pole | | 520 Farnel Road | Santa Maria |
| Pole | | 250 South Ray Road | Santa Maria |
| Pole | | 865 Black Road | Santa Maria |

IV. Field Inspection Violations

ESRB staff observed the following violations during the field inspection:

1. GO 95, Rule 31.1 Design, Construction and Maintenance states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.”

- The top of a pole located in front of 60 2nd Street, Cayucos was damaged.
- The pole located at the rear of 183 Park Avenue, Cayucos, had both anchor guy anchors buried in the ground.
- The pole located at 4048 Draco Drive, Lompoc, was missing an “under-arm bus” strap on the secondary level.
- The pole located at 1599 15th Street, Oceano, had an anchor guy anchor buried in the ground.
- The pole located at 1531 15th Street, Oceano, had an anchor guy anchor buried in the ground.
- The pole located at 1375 18th Street, Oceano, had an anchor guy anchor buried in the ground.
- The pole across from 1310 19th Street, Oceano, had an anchor guy anchor buried in the ground.
- The pole located at 865 Black Road, Santa Maria, with EC Notification 113809128 was marked as “Completed” to correct a leaning pole. ESRB staff noticed the condition still existed.

2. GO 95, Rule 51.6-A, Marking and Guarding, High Voltage Marking of Poles states in part:

“Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words “HIGH VOLTAGE”, or pair of signs showing the words “HIGH” and “VOLTAGE”, not more than six (6) inches in height with letters not less than 3 inches in height. Such signs shall be of weather and corrosion-resisting material, solid or with letters cut out therefrom and clearly legible.”

The following poles had missing, damaged, or missing and damaged “High Voltage” signs:

| Missing “High Voltage” Signs | Damaged “High Voltage” Signs | Missing and Damaged “High Voltage” Signs |
|---|--|--|
| Pole at 191 Park Avenue, Cayucos Pole across from 1821 Wilmar Avenue, Oceano | Pole at 4048 Draco Drive, Lompoc Pole at 4058 Draco Drive, Lompoc | Pole at 245 Bakersfield Avenue, Cayucos |

3. GO 95, Rule 56.7-B, Location of Sectionalizing Insulators, Anchor Guys states in part:

“In order to prevent trees, buildings, messengers, metal-sheathed cables or other similar objects from grounding portions of guys above guy insulators, it is suggested that anchor guys be sectionalized, where practicable, near the highest level permitted by this Rule.”

The poles located at the following addresses had vegetation in contact with a section above the sectionalizing insulator of the anchor guy:

- 61 North 3rd Street, Cayucos
- C/O 20611 on Coyote Creek, Buellton
- Across from 1310 19th Street, Oceano

4. GO 95, Rule 56.9, Guy Marker (Guy Guard) states in part:

“A substantial marker of suitable material, including but not limited to metal or plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. Where more than one guy is attached to an anchor rod, only the outermost guy is required to have a marker.”

The outermost anchor guy located at the intersection of Stowell Rd. and Victoria Pl. did not have a guy marker.

5. GO 95, Rule 18-A-2, Resolution of Potential Violations of General Order 95 and Safety Hazards states in part:

“Where a communications company’s or an electric utility’s (Company A’s) actions result in potential violations of GO 95 for another entity (Company B), that entity’s (Company B’s) remedial action will be to transmit a single documented notice of identified potential violations to the communications company or electric utility (Company A) within a

reasonable amount of time not to exceed 180 days after the entity discovers the potential violations of GO 95. If the potential violation constitutes a Safety Hazard, such notice shall be transmitted within ten (10) business days after the entity discovers the Safety Hazard."

PG&E did not notify the communications company of the following safety hazards:

- Significant strain caused by vegetation on the communication facilities was observed at 5550 El Camino Real, Atascadero.
- Communication facilities located on an abandoned pole at the corner of 14th Street and Wilmar Avenue, Oceano, have not been transferred to the new joint pole.
- Communication facilities located on an abandoned pole at 1800 The Pike, Oceano, have not been transferred to the new joint pole.

6. GO 95, Rule 56.4-C-4, Clearances, From Conductors, Passing on Same Poles states in part:

"The radial clearances between guys and conductors supported by or attached to the same poles or cross arms shall not be less than as specified in Table 2, Case 19."

- The pole located at 1420 14th Street, Oceano, had an anchor guy wire in contact with the communication cable.
- The pole located at 1349 18th Street, Oceano, had an anchor guy wire in contact with the communication cable.

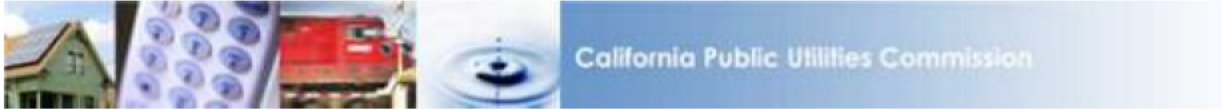
7. GO 128, Rule 17.1, Design, Construction, and Maintenance, states in part:

"Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."

- The pad mounted transformer at 376 Avenue of the Flags, Santa Ynez, showed heavy corrosion in the oil drip pan under the fuses.
- The pad mounted transformer at 51 E Hwy 246, Buellton, had a swollen elbow and the enclosure required re-caulking.

Exhibit 64

Investigation Report



**INVESTIGATION REPORT
OF THE DECEMBER 4, 2017 WILDFIRE
IN SANTA PAULA, CALIFORNIA
INVOLVING SOUTHERN CALIFORNIA EDISON FACILITIES
THAT CAME TO BE KNOWN AS THE THOMAS FIRE**

**SAFETY AND ENFORCEMENT DIVISION
ELECTRIC SAFETY AND RELIABILITY BRANCH
LOS ANGELES**

Investigation Report

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Investigation Report

Definitions

Circuit breaker - An electrical component that incorporates automatic operation and protective features to monitor, control, and protect downstream circuits from excess current and other potentially damaging electrical transients.

Electrical fault - Any abnormal electric current wherein electric current is redirected or interrupted from its intended electric path. Examples of faults are short-circuit and open-circuit faults.

Fault isolation - A process to isolate sections of a circuit to determine the exact location and cause of a fault.

Lockout - When a circuit breaker relays to lockout, it opens and an additional protective lockout circuit is activated. In these instances, the lockout circuit needs to be manually reset by an operator before the circuit breaker can be closed again. The purpose of the lockout circuit is to notify the operator that one of the protective sensing elements within the circuit breaker control center (also called a Relay) has sensed a problem and that the circuit breaker, as well as the entire circuit to which it is connected, needs to be investigated.

No Test Order (NTO) – An NTO is an operation restriction that Edison system operators must implement to guarantee that electrical equipment associated with a work site will not be re-energized following a relay operation on a circuit. An NTO must be requested by a qualified electrical worker after he/she has determined that the electrical hazards associated with the work performed are such that an NTO is appropriate and necessary for safety. When a qualified electrical worker holds an NTO on a circuit, all automatic reclosing equipment directly associated with the work performed on the circuit will be made non-automatic, preventing the automatic re-energization of the circuit in the event of a relay operation. The jurisdictional switching center provides the NTO and only the worker that requested the NTO may release it.

Power restoration - A process to return from abnormal to normal electrical circuit conditions. Normal circuit conditions can be defined in terms of power sources, current paths, and power recipients.

Remote Automatic Reclosers (RAR) - RARs are small circuit breakers located at the top of distribution poles and are typically used on very long distribution feeders. Their function is to isolate a section of the feeder in fault or overload conditions and thereby minimize the number of customers without service. Since they act as small circuit breakers, they have the capability to restore power automatically in temporary fault situations, hence the name "recloser".

Remote Control Switch (RCS) - RCSs are devices installed on a circuit for the purpose of sectionalizing the circuit to facilitate power restoration. They are not load-breaking switches and do not function as protective devices. RCSs operate after a

Investigation Report

circuit has already been de-energized for a set amount of time, thereby assisting in restoration by automatically isolating certain sections of a circuit.

Red Flag Warning (RFW) - A warning issued by the National Weather Service to indicate that warm temperatures, very low humidity, and stronger winds are expected to combine to produce an increased risk of fire danger.

Relay (noun) - An electrically automated operated switch. It is a programmable microprocessor-based device that provides control, protection, automation, monitoring, and metering for circuit breakers and the electrical distribution circuits to which circuit breakers are electrically connected.

Relay (verb) - When a circuit breaker “relays,” it changes positions. It can change from the open position to the closed position or vice versa, based on the design of the control circuit for the circuit breaker. Distribution scale circuit breakers utilize relay circuits for the opening and closing functions of a circuit breaker.

Sectionalize - Use intervening switch gear and other devices (i.e. circuit breaker, pole switch, recloser, relay, drop-out fuse) to break electrical connections, therefore dividing a distribution circuit into electrically isolated sections.

Switch - A device for making and breaking a connection in an electrical circuit.

System Operating Bulletin (SOB) – Southern California Edison (SCE) uses SOBs to define operating procedures, policies, and restrictions for both regular and conditional operations.

Tie wire – A length of wire used to affix a conductor to an insulator.

I. Summary of Incident:

At 1823 hours on December 4, 2017, a wildland fire that came to be known as the Thomas Fire was reported in the city of Santa Paula in Ventura County.¹ At 1841 hours, remote automatic recloser (RAR) 1228 on Southern California Edison's Castro 16 kV circuit relayed to a lockout.² The initial outage following this operation impacted a total of 31 customers and resulted in over 354,000 customer-minutes of interruption (CMI).³ As the Thomas Fire spread, outages on December 4, 2017 would eventually impact over 260,000 Edison customers.⁴

¹ County of Santa Barbara Fire Department Report CA-VNC-103156.

² Bates SCE-SED00003451.

³ Bates SCE-SED00003150.

⁴ Bates SCE-SED00014370.

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The California Department of Forestry and Fire Protection (CAL FIRE) and the Ventura County Fire Department (VCFD) performed a joint investigation into the causes of the ignition of the Thomas Fire and determined that Edison's facilities were the source of two separate ignitions that eventually merged together during the course of the fire. One ignition site was adjacent to a private residence along Koenigstein Road, an offshoot of California State Route 150, and the other ignition site was in the Anlauf Canyon area of Ventura County.

At the Koenigstein Road site, VCFD found that an energized section of 16 kV conductor supported between Edison utility pole number 729565E and utility pole number 729566E failed, fell down, and ignited dry brush at the base of utility pole number 729566E.⁵ At the Anlauf Canyon site, VCFD found that a fire started when multiple 16 kV conductors came into contact with each other, also referred to as wire-slap, which released particles of molten metal that ignited dry brush.⁶ The conductors were suspended between Edison utility poles numbered 1025341E, 1202085E, and 3002114E.⁷ The exact start time of each fire is unknown, however the Santa Barbara County Fire Department recorded a notice of the existence of a fire in Anlauf Canyon on December 4, 2017 at 1823 hours.⁸ The Santa Barbara County Fire Department notice is consistent with the first phone report to Station 20 of the Ventura County Fire Department and with the statements of a witness at Koenigstein Road at 1930 hours on the same day.⁹

The Thomas Fire burned 281,893 acres¹⁰ and was fully controlled on January 12, 2018.¹¹ The Thomas Fire destroyed 1,063 structures, damaged 280,¹² and resulted in two fatalities; one civilian and one firefighter.¹³ Edison reported the total cost of repair to its facilities due to the Thomas Fire to be \$49,422,744.¹⁴

⁵ CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103338, Dated: December 4, 2017.

⁶ CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017.

⁷ CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017.

⁸ County of Santa Barbara Fire Department Report CA-VNC-103156.

⁹ CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017.

¹⁰ CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017.

¹¹ <https://www.fire.ca.gov/incidents/2017/12/4/thomas-fire/>

¹² <https://www.fire.ca.gov/incidents/2017/12/4/thomas-fire/>

¹³ CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017.

¹⁴ Bates SCE-SED00004155.

Investigation Report

Among the responding fire departments for the Thomas Fire were CAL FIRE, Ventura County Fire Department (VCFD), Santa Barbara County Fire Department, City of Ventura Fire Department, and the City of Santa Paula Fire Department.¹⁵ The Thomas Fire origin area was located in a Tier 3 (i.e. “Elevated” fire risk) area of the California Public Utilities Commission’s (CPUC) High Fire Threat District (HFTD) map. The burn area included both Tier 2 and Tier 3 HFTD areas.¹⁶

A. Violation(s):

SED reviewed and analyzed records, inspected and examined physical evidence, and interviewed witnesses related to this incident to determine compliance with Commission rules and regulations. SED determined that Edison committed five (5) violations of the PU Code and Commission rules:

- One (1) violation of GO 95, Rule 38, Minimum Clearances of Wires from Other Wires; one (1) violation of GO 95, Rule 31.1, Design, Construction and Maintenance; and one (1) violation of PU Code §399.2(a):
 - o Edison failed to maintain a minimum required clearance between the conductors on the Castro 16 kV circuit.
- One (1) violation of GO 95, Rule 19, Cooperation with Commission Staff and one (1) violation of PU Code § 316:
 - o Edison failed to provide the list of evidence and records used for Edison’s own investigation.
 - o Edison failed to provide all photographs, notes, reports, and text messages generated by first responders to the incident.

¹⁵ <https://www.fire.ca.gov/incidents/2017/12/4/thomas-fire/>

¹⁶ The HFTD was not formally adopted until 2018, after the ignition of this fire, therefore enhanced rules and regulations applicable to Tiers 2 and 3 of the HFTD were not applicable to this location at the time of the incident.

Investigation Report

II. Background

A. Witnesses

Table 1: Witnesses in SED's Investigation

| No. | Name | Title | Address |
|-----|------------------|-----------------------|---|
| 1 | Koko Tomassian | SED Investigator | 320 W. 4th St, Los Angeles, CA 90013 |
| 2 | Joceline Pereira | SED Investigator | 320 W. 4th St, Los Angeles, CA 90013 |
| 3 | Bryan Pena | SED Investigator | 320 W. 4th St, Los Angeles, CA 90013 |
| 4 | Julie Olin | Edison Claims Advisor | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 5 | Eric Coolidge | Edison Claims Advisor | 2244 Walnut Grove Ave, Rosemead, CA 91770 |

Investigation Report

B. Evidence

Table 2: Evidence in SED's Investigation

| No. | Description |
|-----|--|
| 1 | Edison 315 Letter dated December 29, 2017 |
| 2 | SED Investigator Data Request (DR) SED-001 and responses |
| 3 | SED Investigator Data Request (DR) SED-001B and responses |
| 4 | SED Investigator Data Request (DR) SED-002 and responses |
| 5 | SED Investigator Data Request (DR) SED-003 and responses |
| 6 | SED Investigator Data Request (DR) SED-004 and responses |
| 7 | SED Investigator Data Request (DR) SED-005 and responses |
| 8 | SED Investigator Data Request (DR) SED-006 and responses |
| 9 | SED Investigator Data Request (DR) SED-007 and responses |
| 10 | SED Investigator Data Request (DR) SED-009 and responses |
| 11 | CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017 |
| 12 | CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103338, Dated: December 4, 2017 |
| 13 | County of Santa Barbara Fire Department Report CA-VNC-103156 |
| 14 | JHNolt Associates Project Status Memorandum – Thomas Fire, dated October 24, 2018 |

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C. Description of Edison Facilities

Edison's Castro 16 kV circuit is fed from the Wakefield substation and incorporates three primary protective devices.¹⁷ These devices provide power sensing and protection for the Castro 16 kV circuit starting from the furthest point upstream in the circuit at the Wakefield substation.¹⁸

¹⁷ Bates SCE-SED00004194.

¹⁸ Bates SCE-SED00003446.

Critical Energy Infrastructure Information (CEII)

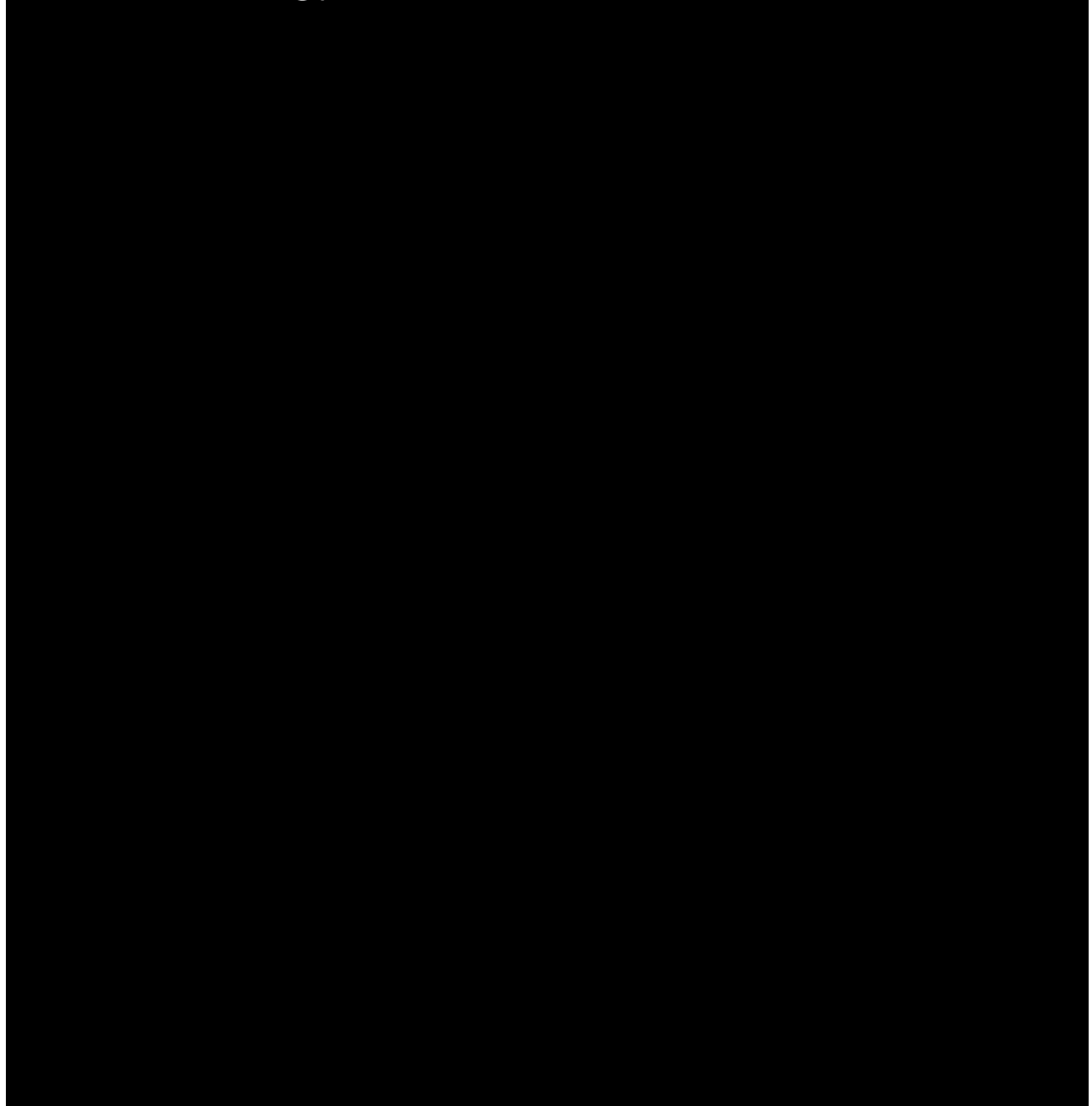


Figure 1: Edison's Castro 16 kV circuit map¹⁹

These devices are configured to monitor the circuit at different locations and send a signal to selectively interrupt and de-energize different sections the circuit after detecting a predetermined fault condition. The devices are normally configured to wait a set amount of time before they then send an additional signal to re-energize sections of the circuit by re-establishing circuit continuity. The devices then test the circuit to see if

¹⁹ Bates SCE-SED00004194.

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the fault condition has cleared. If fault condition is still present, the protective devices will interrupt and de-energize the circuit again. However, if the fault is cleared, the circuit will remain energized.

During Red Flag Warnings (RFWs), Edison implements SOB 322 which restricts automatic relay and reclose operations in fire hazard areas. In these instances, circuit breakers and remote automatic reclosers on circuits affected by SOB 322 are made non-automatic and will lockout following the first relay operation. After a lockout, an Edison employee must patrol the circuit to determine whether it is safe to reenergize the circuit as required by Section 5.1 of SOB 322.²⁰ According to Edison's records, SOB 322 was put into effect on the Castro 16 kV circuit on December 3, 2017 and remained in effect throughout the day of the Thomas Fire incident on December 4, 2017.²¹

The first circuit protection device, located within the Wakefield Substation, is the Castro 16 kV circuit breaker and relay which was a Mitsubishi Electric Power Products medium voltage circuit breaker with manufacture's designation MEPP117D25-1 and ABB Relay DPU2000R protection system.²² The second circuit protection device, located downstream of the main circuit breakers, was RAR 0179 which consisted of a Cooper RXE recloser equipped with a Schweitzer Engineering Laboratories SEL-351R-2 relay.²³ The third circuit protection device, located on a branch circuit downstream of RAR 0179, was RAR 1228 which consisted of a G&W Viper recloser equipped with a Schweitzer Engineering Laboratories SEL-351R-4 relay.²⁴

The protection devices equipped to monitor the Castro 16 kV circuit were enabled to provide overcurrent protection as well as protect against certain other circuit conditions. This means that the devices were set to sense different types of overcurrent conditions on the circuit and respond by selectively de-energizing the circuit in the affected sections. The downed conductor at Koenigstein Road as well as the wire slap event in Anlauf Canyon likely caused separate overcurrent conditions on the Castro 16 kV circuit. Edison's records indicate that there were automatic operations of both RAR 0179 at 1927 hours²⁵ and RAR 1228 at 1841 hours²⁶ on December 4, 2017. The timing of the circuit events as expressed by different witnesses at Koenigstein Road and within Anlauf Canyon were corroborated with the timing of the protection system operations as recorded by Edison's circuit protection system.

²⁰ Bates SCE-SED00003591.

²¹ Bates SCE-SED00014019.

²² Bates SCE-SED00003445.

²³ Bates SCE-SED00003445.

²⁴ Bates SCE-SED00003446.

²⁵ Bates SCE-SED00003450.

²⁶ Bates SCE-SED00003452.

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The Edison facilities involved at the Koenigstein Road incident site included the downed center conductor of No. 4 ACSR overhead primary conductor between utility poles numbered 729566E and 729565E as well as all interconnecting components used to suspend the conductor. The poles were Douglas fir wooden poles²⁷ that supported the overhead conductors using pin-type insulators with vise tops that held conductors in place using a clamp-style mechanism at the top of the insulator. Utility pole 729566E was a 50-foot class H1²⁸ pole and utility pole 729565E was a 45-foot class 2²⁹ pole. The linear distance between the two poles that supported the downed primary conductor was approximately 274 feet.³⁰

The Edison facilities involved in the Anlauf Canyon incident site include three 16 kV No. 4 ACSR conductors suspended between utility poles numbered 1025341E, 1202085E, and 3002114E, totaling six spans of conductors. Utility pole 1025341E was a 45-foot class H3³¹ pole. Utility pole 1202085E was a 45-foot class 4³² pole. Utility pole 3002114E was a 45-foot class 4³³ pole. The linear distance between utility pole 1025341E and 1202085E was approximately 71 feet. The linear distance between utility pole 1202085E and 3002114E was approximately 271 feet.³⁴ Unlike the Koenigstein Road incident location, the conductors at Anlauf Canyon were found suspended in the air and not in contact with the ground.

Evidence collection for both of the Thomas Fire incident locations, Anlauf Canyon and Koenigstein Road, began on December 28, 2017.³⁵ All evidence associated with both of the Thomas Fire incident locations was retained by CALFIRE, the Ventura County Fire Department or Southern California Edison.³⁶

D. Description of Events

On December 3, 2017, the National Weather Service forecasted that strong Santa Ana winds would impact parts of Edison's service territory with extreme fire danger expected and issued a RFW at 2200 hours.³⁷

²⁷ Bates SCE-SED00010010.

²⁸ American National Standards Institute (ANSI) O5.1 wood pole class.

²⁹ American National Standards Institute (ANSI) O5.1 wood pole class.

³⁰ Bates SCE-SED00010010.

³¹ American National Standards Institute (ANSI) O5.1 wood pole class.

³² American National Standards Institute (ANSI) O5.1 wood pole class.

³³ American National Standards Institute (ANSI) O5.1 wood pole class.

³⁴ Bates SCE-SED00012863, SCE-SED00013011, SCE-SED00013135.

³⁵ CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017.

³⁶ Bates SCE-SED00009815, SCE-SED00009820.

³⁷ Bates SCE-SED00014019.

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On December 4, 2017 at 1817 hours, a phase-to-phase fault event occurred between the A phase conductor and the B phase conductor of the Castro 16 kV circuit, downstream from RAR 1228.³⁸ The magnitude of the fault current was 908 Amps and the duration was not recorded by the protection system event recorder.³⁹ It is typical of protection devices, such as RAR 1228, to be configured to measure and consider both fault amplitude and fault duration before safety actions are triggered. The circuit at Anlauf Canyon was constructed of three different types of primary conductor, including #4 and 1/0 ACSR, and 4 AWG copper wire, having current carrying capacity ratings of 160, 280, and 195 amps respectively.⁴⁰ In this instance, though the phase-to-phase fault relay settings of RAR 1228 were set at 200 amps,⁴¹ the combination of the fault current amplitude and the duration of the fault current were not high enough to cause RAR 1228 to operate and de-energize the circuit. Also at 1817 hours, two smart meters on the Castro 16 kV circuit, Meter No. 256000-035324 and Meter No. 259000-065411, registered a low voltage event lasting approximately two seconds.⁴² At 1826 hours, a fire was reported in Anlauf Canyon, east of Steckel Park in Santa Paula.^{43,44} At 1841 hours, RAR 1228 registered a second phase-to-phase fault event on the same conductors, measuring a magnitude of 1,593 Amps and a duration of 0.49 seconds, which caused protective device RAR 1228 to relay and lockout, de-energizing the circuit downstream of the device.⁴⁵ When RAR 1228 opened, de-energizing the section of the Castro 16 kV circuit in Anlauf Canyon, it remained open and did not test and reclose due to SOB 322 being in effect on that circuit.⁴⁶

Around the same time⁴⁷ an Edison troubleman reported to the Anlauf Canyon area after an Edison dispatcher notified him of the presence of a fire in the area; however, the troubleman left the area after CAL FIRE denied him access. The troubleman returned later that night, at the direction of his field supervisor, to assist CAL FIRE's operations in removing damaged Edison facilities.⁴⁸

³⁸ Bates SCE-SED00013460.

³⁹ Bates SCE-SED00013460.

⁴⁰ Bates SCE-SED00010189.

⁴¹ Bates SCE-SED00003446.

⁴² Bates SCE-SED00010200, SCE-SED00010194.

⁴³ Edison 315 Letter dated December 29, 2017.

⁴⁴ Under PU Code 315, public utilities must file a report for every accident that meets incident reporting requirements. This is informally known as a "315 Letter."

⁴⁵ Bates SCE-SED00013460.

⁴⁶ Bates SCE-SED00014019.

⁴⁷ Edison was unable to provide an exact time for the troubleman's arrival at the Anlauf Canyon area.

⁴⁸ Examination Under Oath EUO [REDACTED]

[REDACTED] 013019.

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On December 4, 2017, in a different area of Santa Paula, but along the same Castro 16 kV circuit, RAR 0179 experienced a fault at or about 1927 hours. Edison reported that the time recorded by its protective system may be different from the actual time of the event.⁴⁹ The fault caused RAR 0179 to relay and lockout, de-energizing the Castro 16 kV circuit downstream of RAR 0179. The magnitude of the fault current was 618 Amps and the duration of the fault current was 1.16 seconds. The fault was a phase-to-ground fault on the C phase conductor of the circuit.⁵⁰ At the time of the events described above, the Thomas Fire area (including the area around Koenigstein Road) was already secured by CAL FIRE. Edison personnel did not gain access to the area until later permitted by CAL FIRE.

On December 7, 2017, CAL FIRE informed Edison that its facilities were under investigation in relation to the ignition of fires in the vicinity of Koenigstein Road and Anlauf Canyon.⁵¹

CAL FIRE and VCFD eventually concluded that, in the Anlauf Canyon area of Santa Paula, Edison facilities experienced one or more wire slapping events which lead to the ejection of molten metal particulate that ignited dry brush and started the Thomas Fire.⁵² In the Koenigstein Road area of Santa Paula, CAL FIRE and VCFD concluded that a downed primary conductor owned by Edison ignited a separate fire on the same day.⁵³

⁴⁹ Bates SCE-SED00003449.

⁵⁰ Bates SCE-SED00004217.

⁵¹ Bates SCE-SED00004154.

⁵² CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017.

⁵³ CAL FIRE and VCFD Joint Thomas Fire Report – Case Number: 17CAVNC103156, Dated: December 4, 2017.

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III. SED's Investigation

A. Observations and Findings: Koenigstein Road

Edison conducted detailed inspections of the utility poles around the Koenigstein Road ignition site in August of 2014.⁵⁴ The inspections uncovered safety issues relating to pole moldings, high voltage signs, and pole tags, but reported no issues specific to the primary high voltage conductors, insulators, or fasteners that held the conductors in place.

During the initial visit to the ignition site along Koenigstein Road on December 8, 2017, SED investigators discovered that the exact location of the downed Edison conductor was a residential property at [REDACTED] Koenigstein Road, Santa Paula, California, 93060. The homeowner was home at the same time as the approximated circuit interruption action of RAR 0179. The homeowner provided statements to SED investigators that she heard an explosion, then moved to a location where she witnessed sparks falling to the ground, then witnessed the start of the fire.⁵⁵

Upon surveying the Koenigstein site, SED investigators observed one end of the center conductor laying on the ground between poles numbered 729565E and 729566E. Multiple points along the conductor were frayed out but remained unbroken, commonly referred to as bird caging. Sections of the conductor were also blackened or charred. It was not apparent whether the discoloration on the conductor was due to an electrical event that occurred on the circuit or due to the fire. The bird caging, damaged conductor end, faults noted on the circuit (as described earlier in this report), and witness statements are all consistent with a failed conductor leading to a ground fault, fire, and circuit interruption on Edison's Castro 16 kV circuit downstream of RAR 0179.

SED analyzed the fault metrics reported by Edison concerning the circuit activity recorded at approximately 1927 hours on December 4, 2017 by RAR 0179⁵⁶, and compared them to the operational characteristics of the protection device monitoring that section of the Castro 16 kV circuit.⁵⁷ SED's analysis concluded that the device operated as expected with an actual relay time delay being recorded at 1.08 seconds⁵⁸, which corresponded to the expected time delay given by the Institute of Electrical and Electronics Engineers (IEEE) C37.112 standard for inverse-time operation characteristics of overcurrent relays.

⁵⁴ Bates SCE-SED00011942.

⁵⁵ Interview Questions Form, 12/08/2017, [REDACTED].

⁵⁶ Bates SCE-SED00004217.

⁵⁷ Schweitzer Engineering Laboratories SEL-351R-2 Recloser Control Instruction Manual.

⁵⁸ Bates SCE-SED00004217.

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Site photos depict the Koenigstein ignition site, pole 729566E, and pole 729565E. The primary conductor failed towards the 729566E side of the span and remained attached on the 729565E side.



Figure 2: SED photo Koenigstein site, 729566E at the fore, 729565E at the rear.

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Figure 3: SED photo of Koenigstein site, 729565E with center primary conductor laying on the ground.

CAL FIRE removed and stored as evidence both ends of the center conductor running between poles numbered 729565E and 729566E. Depicted below in Figure 4 is one end of the failed conductor which appears charred, melted, and is missing material, thereby not appearing as a complete continuous conductor. The other end of the failed conductor shown in Figure 5, is hidden by multiple wraps of black electrical tape. At the time of SED's inspection of the failed conductor, CAL FIRE did not allow SED to remove the electrical tape and examine the other end of the failed conductor. If, at a later date, CAL FIRE conducts a controlled viewing of the end of the conductor covered in electrical tape, then SED investigators will document findings in an updated version of this report.

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Figure 4: SED photo of Koenigstein evidence, one end of failed conductor.

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Figure 5: SED photo of Koenigstein evidence, other end of failed conductor (covered with electrical tape) still attached in the vise of the insulator mounted to 729566E

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B. Observations and Findings: Anlauf Canyon

The most recent detailed inspection of the utility poles related to the Anlauf Canyon ignition site was conducted by Edison in May of 2013. No findings or notifications resulted from this inspection.⁵⁹ During its annual patrol inspection for the same area, Edison uncovered issues related to pole tags and ground moldings, with no issues reported related to conductor condition.⁶⁰

SED visited Anlauf Canyon on December 28, 2017 to examine poles numbered 1025341E, 1202085E, and 3002114E and their associated conductors. The figure below depicts the configuration of the three subject poles. By the time SED had arrived, Edison had already removed the conductors from the poles at the request of CAL FIRE, therefore SED was unable to observe these conductors in their original state immediately following the incident. Edison had cut down the top of pole 1202085E. The conductors had been removed from their connections on poles numbered 1025341E and 3002114E and lain across the ground in the same configuration as they were when they were attached to the poles. CAL FIRE retained the three lengths of conductor at its Fresno facility. Edison retained the top of pole 1202085E.

⁵⁹ Bates SCE-SED00011942

⁶⁰ Bates SCE-SED00011817

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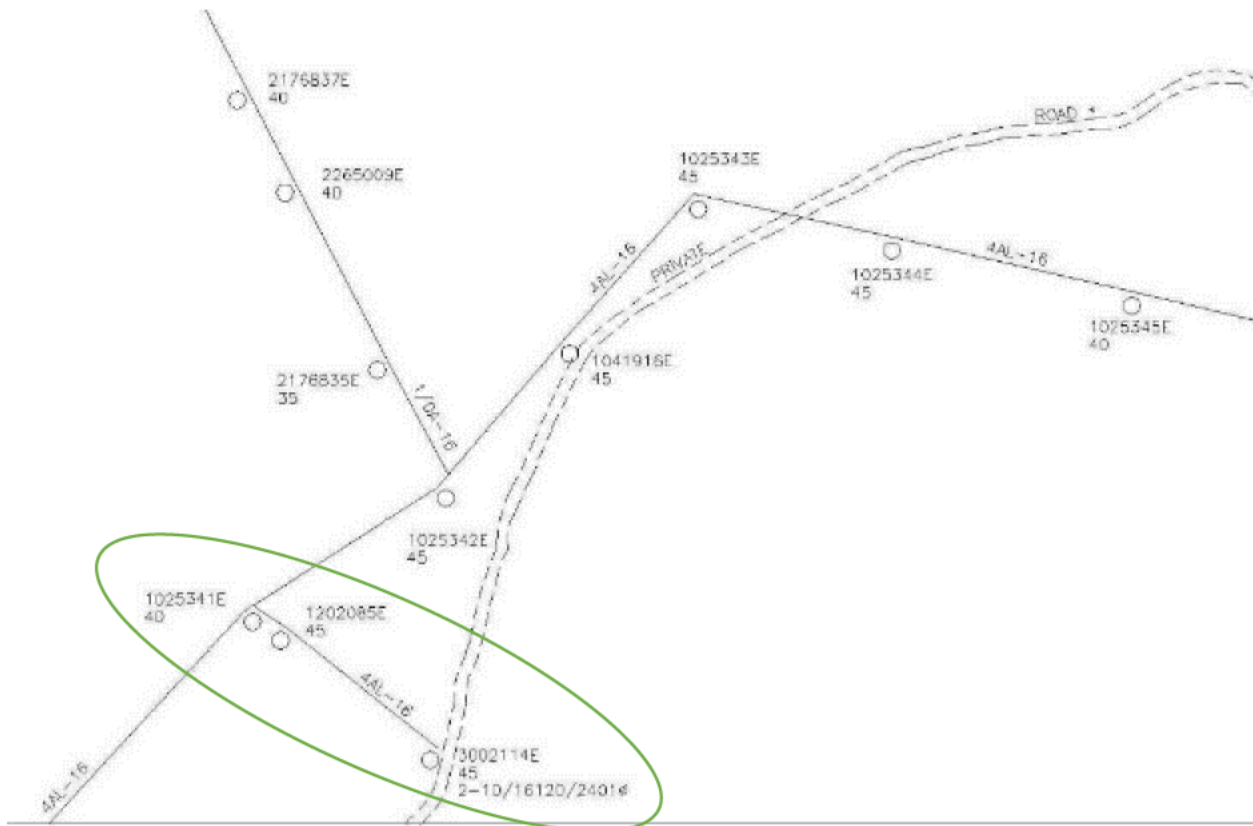


Figure 6: FIM Anlauf Canyon area of interest⁶¹

⁶¹ Bates SCE-SED00009852.

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Figure 7: SED photo of Anlauf Canyon site, the top of pole 1202085E removed by Edison.

SED observed damage on the east and center conductors including burn marks, arc marks, and loss of material referred to as “pitting” as shown in the figures below. Pitting is an indicator that wire-slap has occurred; however, SED was unable to determine how recently these pitting marks were made. SED examined these same conductors at CAL FIRE’s Fresno facility on February 7, 2017, and found further evidence of damage, including broken strands and bird caging. However, CAL FIRE denied SED’s request to unravel the conductors to examine them more closely. Because SED could not unravel the conductors, SED was unable to take measurements to estimate the location of the damage on the conductors and review the relative locations of the observed damage along the conductors, which would have been useful to confirm whether the damage corresponded in location to similar damage on the adjacent conductor. Corresponding damage would support the conclusion that two or more conductors had made contact.

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Figure 10: SED photo of Anlauf Canyon site, pitting on the east conductor between poles numbered 3002114E and 1202085E.

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Figure 11: Edison photograph depicting damage on two unidentified adjacent conductors between poles numbered 1025341E and 3002114E.⁶²

⁶² Bates SCE-SED00004897.

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Figure 12: Edison photograph depicting damage on the center conductor between poles numbered 1025341E and 1202085E.⁶³

⁶³ Bates SCE-SED00004872.

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Figure 13: SED photo of February 2017 Anlauf Canyon evidence examination, damage on the east conductor between poles numbered 1025341E and 3002114E.

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Figure 14: SED photo of February 2017 Anlauf Canyon evidence examination, arc marks and bird-caging on the east conductor between poles numbered 1025341E and 3002114E.



Figure 15: SED photo of February 2017 Anlauf Canyon evidence examination, burn marks and broken strands on center conductor between poles numbered 1025341E and 3002114E.

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SED met with VCFD and CAL FIRE investigators on November 27, 2018, and again on December 13, 2018, to discuss findings related to the Thomas Fire. On November 27, 2018, VCFD shared its investigative work that led to its conclusion that there was conductor-to-conductor contact in Anlauf Canyon. VCFD obtained surveillance video footage from several sources that show two flashes of light occurring simultaneously at approximately 1817 hours. VCFD attributed the flashes of light to arcing events resulting from contact between two conductors. VCFD also noted that some of the footage captured the early moments of the fire ignition, minutes before the first eyewitnesses called 911 at 1823 hours. VCFD used the surveillance camera footage to determine the general location of the two flashes of light. Its assessment was that the flashes of light originated in Anlauf Canyon. SED investigators were unable to obtain and analyze the surveillance video footage.

During the meeting with VCFD on November 27, 2018, SED obtained a written report dated October 24, 2018, by JHNolt Associates, an independent contractor who employs electrical, mechanical, and corrosion engineers. CAL FIRE and VCFD contracted with JHNolt Associates to examine the area of the Thomas Fire. JHNolt Associates identified “considerable evidence of line slap” on the conductors between pole 3002114E and a non-Edison pole servicing third-party equipment.⁶⁴ JHNolt Associates identified these conductors as having “the highest density of line-slap arc damage” relative to CAL FIRE and VCFD’s area of interest.⁶⁵ The written report included no information on the condition of other conductors in the examined area. However, JHNolt Associates later examined the damage that VCFD identified on the conductors between poles 3002114E and 1202085E and confirmed that the damage appeared consistent with an arc event.⁶⁶

SED analyzed the fault metrics reported by Edison concerning the circuit activity recorded by RAR 1228⁶⁷ and compared them to the operational characteristics of the protection device monitoring that section of the Castro 16 KV circuit.⁶⁸ SED concluded that the second event recorded by the RAR’s event recorder at 1841 hours, the device operated as expected with an actual relay time delay being recorded at 0.43 seconds⁶⁹, which corresponded to the expected time delay given by the IEEE C37.112 standard for inverse-time operation characteristics of overcurrent relays. Edison reported that the fault magnitude and duration were not significant enough for the RAR to operate during the first fault event.⁷⁰

⁶⁴ JHNolt Associates Project Status Memorandum – Thomas Fire, dated October 24, 2018.

⁶⁵ JHNolt Associates Project Status Memorandum – Thomas Fire, dated October 24, 2018.

⁶⁶ County of Santa Barbara Fire Department Report CA-VNC-103156.

⁶⁷ Bates SCE-SED00013460.

⁶⁸ Schweitzer Engineering Laboratories SEL-351R-4 Recloser Control Instruction Manual.

⁶⁹ Bates SCE-SED00013460.

⁷⁰ Bates SCE-SED00013460.

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SED did not determine any source of ignition or any unusual events on Edison's facilities that may have led to the ignition of a fire. SED's conclusion regarding the ignition events that happened at Anluaf Canyon and Koenigstein Road are based on the joint VCFD-CAL FIRE report.

C. Violations

SED reviewed and analyzed records, examined physical evidence, and interviewed witnesses related to this incident to determine compliance with Commission regulations. SED's investigation discovered three (3) violations.

General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires, states:

The minimum vertical, horizontal or radial clearances of wires from other wires shall not be less than the values given in Table 2 and are based on a temperature of 60° F. and no wind. Conductors may be deadended at the crossarm or have reduced clearances at points of transposition, and shall not be held in violation of Table 2, Cases 8–15, inclusive.

The clearances in Table 2 shall in no case be reduced more than 10 percent, except mid-span in Tier 3 of the High Fire-Threat District where they shall be reduced by no more than 5 percent, because of temperature and loading as specified in Rule 43 or because of a difference in size or design of the supporting pins, hardware or insulators. All clearances of less than 5 inches shall be applied between surfaces, and clearances of 5 inches or more shall be applied to the center lines of such items. The utilities of interest (including electric supply and/or communication companies) shall cooperate and provide relevant information for sag calculations for their facilities, upon request.

General Order 95, Rule 38, Table 2, Case 17, Column F requires 16 kV conductors of the same circuit to maintain clearance of 6 inches.

Violation 1.

VCFD and CAL FIRE concluded in their joint investigation of the Anlauf Canyon ignition site that two or more conductors of the same circuit between poles numbered 1025341E, 1202085E, and 3002114E made contact on December 4, 2017. When the conductors made contact, their clearance was reduced to almost zero, therefore Edison violated GO 95, Rule 38, because it did not ensure that its conductors maintained the minimum clearance. SED's conclusion is based on the information in the joint VCFD-CAL FIRE report.

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General Order 95, Rule 31.1 - Design, Construction and Maintenance, states:

Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.

A supply or communications company is in compliance with this rule if it designs, constructs, and maintains a facility in accordance with the particulars specified in General Order 95, except that if an intended use or known local conditions require a higher standard than the particulars specified in General Order 95 to enable the furnishing of safe, proper, and adequate service, the company shall follow the higher standard.

For all particulars not specified in General Order 95, a supply or communications company is in compliance with this rule if it designs, constructs and maintains a facility in accordance with accepted good practice for the intended use and known local conditions.

GO 95, Rule 31.1 requires utilities to design, operate, and maintain their facilities for their intended purpose and in a safe manner consistent with industry standard practices and based on known local conditions.

Violation 2

Edison records indicate that detailed inspections were conducted on the power lines at Anlauf Canyon on February 14, 2008 and again on May 2, 2013 and that inspectors failed to identify any deficiencies. Edison's Inspection Procedures for Overhead Detailed Inspections require that Edison inspectors check the condition of conductors for excessive slack. Excessive slack could make it easier for conductors to make contact during windy conditions.

Under GO 95, Rule 31.1, Edison is required to design its facilities so that it can provide safe and adequate service, and in accordance with accepted good practice and for the intended use of its facilities and known local conditions. Additionally, GO 95, Rule 38 requires Edison to install and maintain safe clearances between its overhead conductors to prevent them from contacting each other. Rule 38 also requires that "The clearances in Table 2 shall in no case be reduced more than 10 percent, except mid-span in Tier 3 of the High Fire-Threat District where they shall be reduced by no more than 5 percent, because of temperature and loading as specified in Rule 43." Rule 43

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require utilities to account for “A horizontal wind pressure of 8 pounds per square foot of projected area on cylindrical surfaces” when designing and maintaining their overhead conductors. In this case, 8 pounds per square inch would result in 56 MPH.

The fact that the conductors made contact during wind conditions that are normal to the local area, and the fact that the contact occurred at a wind speeds less than 56 MPH demonstrates that Edison did not maintain its overhead conductors safely and with the proper clearance. Edison should have designed and maintained its overhead to prevent contact. Edison could have accomplished this either by providing more clearance between its conductors or by using spacers to prevent contact. Edison inspectors should have recognized the potential for wire-slap in the primary conductors at Anlauf Canyon and should have mitigated the hazard. Edison’s failure to properly maintain its overhead conductors by recognizing the need/necessity to increase the clearance between them, resulted in an ignition and ultimately, the fire.

California Public Utilities (PU) Code – PU Code § 399.2, states in part:

(a)(1) It is the policy of this state, and the intent of the Legislature, to reaffirm that each electrical corporation shall continue to operate its electric distribution grid in its service territory and shall do so in a safe, reliable, efficient, and cost-effective manner.

PU Code § 399.2 require utilities to operate their facilities in a safe manner.

Violation 3

Edison failed to operate its facilities in a safe and reliable manner. When the overhead conductors made contact, they caused an ignition that started the fire. Edison should have maintained the clearance of its overhead conductors in a manner consistent with the clearance specified in GO 95, Rule 38. Edison should have recognized during its last detailed inspection that the clearance between its overhead conductors was not sufficient to prevent contact during windy conditions. By failing to recognize the danger imposed by improper clearance, Edison failed to operate its facilities safely as required by PU Code § 399.2, thus, causing an ignition that started the fire.

General Order 95, Rule 19 - Cooperation with Commission Staff; Preservation of Evidence Related to Incidents Applicability of Rules, states:

Each utility shall provide full cooperation to Commission staff in an investigation into any major accident (as defined in Rule 17) or any reportable incident (as defined in CPUC Resolution E-4184), regardless of pending litigation or other investigations, including those which may be related to a

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Commission staff investigation. Once the scene of the incident has been made safe and service has been restored, each utility shall provide Commission staff upon request immediate access to:

- Any factual or physical evidence under the utility or utility agent's physical control, custody, or possession related to the incident;*
- The name and contact information of any known percipient witness;*
- Any employee percipient witness under the utility's control;*
- The name and contact information of any person or entity that has taken possession of any physical evidence removed from the site of the incident;*
- Any and all documents under the utility's control that are related to the incident and are not subject to the attorney-client privilege or attorney work product doctrine.*

Any and all documents or evidence collected as part of the utility's own investigation related to the incident shall be preserved for at least five years. The Commission's statutory authorization under Cal. Pub. Util. Code §§ 313, 314, 314.5, 315, 581, 582, 584, 701, 702, 771, 1794, 1795, 8037 and 8056 to obtain information from utilities, which relate to the incidents described above, is delegated to Commission staff.

California Public Utilities Code – PU Code § 316, states:

Each electrical corporation shall cooperate fully with the commission in an investigation into any major accident or any reportable incident, as these terms are defined by the commission, concerning overhead electric supply facilities, regardless of pending litigation or other investigations, including, but not limited to, those that may be related to a commission investigation.

(a) After the scene of the incident has been made safe and service has been restored, each electrical corporation shall provide the commission, upon its request, immediate access to all of the following:

- (1) Any factual or physical evidence under the electrical corporation's, or its agent's, physical control, custody, or possession related to the incident.*
- (2) The name and contact information of any known percipient witness.*

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- (3) Any employee percipient witness under the electrical corporation's control.*
- (4) The name and contact information of any person or entity that has taken possession of any physical evidence removed from the site of the incident.*
- (5) Any and all documents under the electrical corporation's control that are related to the incident and are not subject to attorney-client privilege or attorney work product doctrine.*
- (b) Each electrical corporation shall preserve any and all documents or evidence it collects as part of its own investigation related to the incident for at least five years or a shorter period of time as authorized by the commission.*

Any and all documents collected by an electrical corporation pursuant to this section shall be catalogued and preserved in an accessible manner for assessment by commission investigators as determined by the commission.

General Order 95, Rule 19 and PU Code § 316 require that utilities cooperate with Commission staff, including SED, for the purposes of investigating accidents.

Violations 4 and 5.

During the course of its investigation of this incident, SED requested documents from Edison.⁷¹ In one request, SED asked for a comprehensive list of all evidence and records that Edison would be using in its own investigation of the incident.⁷² Edison objected to the request and did not comply, citing the attorney work product doctrine as the basis of its objection. In other incident investigations SED has discovered, through data request inquiries, that Edison creates maintenance, operation and/or repair records beyond the Commission's explicit General Order requirements. As is the case with all electric utilities, SED relies on Edison to maintain such internal records for its equipment and programs and provide such records to SED investigators when requested to do so. Under such circumstances, unless Edison had directly provided the records themselves or included such records in a comprehensive list, SED investigators would otherwise be unaware of their existence. By not providing a list of all evidence and records to SED, Edison impeded SED's ability to perform its own evidence review. Furthermore, Edison's actions prevented SED from reviewing all of the records available for the subject equipment or programs involved in the incident that may have contributed to the cause or circumstances that led up to the incident, impeding SED's ability to conduct a thorough investigation.

⁷¹ SED Investigator Data Request SED-001, SED-001B, SED-002, SED-003, SED-004, SED-005, SED-006, SED-007, SED-008, SED-009, SED-010.

⁷² Bates SCE-SED00009814.

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In another data request, SED asked that Edison provide all photographs, notes, reports, and text messages generated by Edison's first responders, which captured their observations of the start of the incident.⁷³ Edison objected to this request and did not comply, citing the attorney work product doctrine as the basis for its objection. Instead, Edison provided Interruption Log Sheets, repair orders, and photographs which were a limited subset of first responder documents that SED requested.

Because the destructive force of a wildfire can quickly alter a scene and destroy evidence, the earliest observations can be critical to understanding the events that occurred and determining the potential findings of an investigation. By not providing the comprehensive set of data and evidence that SED requested, Edison impeded and prolonged SED's investigation. Edison's actions prevented SED from reviewing all available information from the point at which the fire had least disturbed the electric facilities. The actions of Edison's first responders cannot preemptively be under the direction of Edison counsel. Any notes, reports, or text messages that SED requested would not be generated under the direction of Edison counsel and accordingly should not be subject to attorney-client or work product privilege.

For the reasons stated above, SED's investigation determined that Edison is in violation of PU Code § 316 and GO 95, Rule 19 for failing to provide: the list of evidence and records used for Edison's own investigation, as well as photographs, notes, reports, and text messages generated by first responders. In the spirit of full and transparent cooperation with the Commission and its staff, it is imperative that Edison respond to SED data requests with the most comprehensive information available. Without such comprehensive information, SED cannot conduct a thorough investigation, determine the root cause of the incident, expeditiously remedy any issues and prevent future similar incidents from occurring.

⁷³ Bates SCE-SED00011709.

Investigation Report

IV. Conclusion

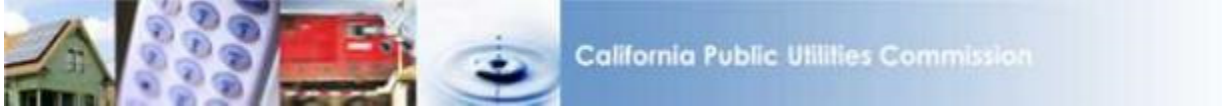
SED's investigation discovered that Edison committed five (5) violations of PU Code and Commission rules:

- One (1) violation of GO 95, Rule 38, Minimum Clearances of Wires from Other Wires; one (1) violation of GO 95, Rule 31.1, Design, Construction and Maintenance; and one (1) violation of PU Code §399.2(a):
 - o Edison failed to maintain a minimum required clearance between the conductors on the Castro 16 kV circuit.
- One (1) violation of GO 95, Rule 19, Cooperation with Commission Staff and one (1) violation of PU Code § 316:
 - o Edison failed to provide the list of evidence and records used for Edison's own investigation.
 - o Edison failed to provide all photographs, notes, reports, and text messages generated by first responders to the incident.

If SED becomes aware of additional information pertaining to this incident that could modify SED's findings in this Incident Investigation Report, SED may re-open the investigation and may modify this report or take further actions as appropriate.

Exhibit 65

Investigation Report



INVESTIGATION REPORT OF THE WOOLSEY FIRE

**SAFETY AND ENFORCEMENT DIVISION
ELECTRIC SAFETY AND RELIABILITY BRANCH
LOS ANGELES**

Investigation Report

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Investigation Report

I. Summary of Incident:

On Thursday, November 8, 2018 at 1422 hours, the Edison 16 kV Big Rock circuit out of Chatsworth substation relayed and locked out. At 1424 hours, the Ventura County Fire Department received notice of a fire, now known as the Woolsey Fire, at the Santa Susana Field Laboratory in the Simi Hills, just south of Simi Valley. The fire ignited at two points simultaneously and these two locations were designated by CalFire as Sites 1 and 2.

SED's investigation determined that a loose transmission down guy wire attached to pole number 4534353E (the "Steel Pole") contacted an Edison 16 kV jumper wire and caused an arc flash between them. The arc flash caused hot metal fragments to drop to the ground, igniting the brush below. This ignition site came to be known as Site 2. In addition, the contact caused the steel pole to become energized, thus energizing all guy wires attached to it. Among these guy wires was a distribution down guy wire that was in contact with an Edison Carrier Solutions (ECS) messenger wire on a wooden pole nearby. This messenger wire also became energized and went on to transmit the power to a second ignition site down the road that would be designated as Site 1.

The messenger wire extended about one quarter mile east to Site 1 between poles number 4650857E and 4557126E; these two poles supported several other communications conductors in addition to an ECS communications conductor from Site 2. Trees in this area had been growing into the communication conductors between these poles and pressing them together. This overgrowth caused the energized messenger wire and its lashing wire to make contact with another messenger wire and its lashing in the same span. The contact between the two sets of wires caused an arc, which partially melted the lashing wires and caused hot fragments of lashing wire to fall into the brush below. These hot metal fragments ignited the brush and started a second fire there at Site 1. These two brush fires converged as they burned south and became the Woolsey Fire.

The Woolsey Fire went on to burn 96,949 acres of land, destroy 1,643 structures, cause three fatalities, and prompted the evacuation of more than 295,000 people in the area. The total damage to property is estimated to be approximately \$6 billion. The total cost of damages to Edison facilities had not been tabulated as of the time this report was issued. The fire was 100% contained at 1821 hours on November 21, 2018.

Cal Fire's investigation report states, "the Investigation Team (IT) determined electrical equipment associated with the Big Rock 16kV circuit, owned and operated by Southern California Edison (SCE), was the cause of the Woolsey Fire. The IT determined the fire was caused by a series of events. The series of events began when a slack SCE transmission guy wire arced with the energized A-phase jumper conductor on pole number 4534353E at Site #2. This event energized pole number 4534353E and its guy wires. A slack distribution guy wire located on the south side of pole number 4534353E was in contact with hardware associated with the SCE communication line, thus causing the SCE communication line strand, traveling east towards Site #1, to energize. The

Investigation Report

SCE communication line between Site #1 and Site #2 was continuous with no ground and contacted an adjacent unidentified communication line at Site #1. This series of events resulted in heated material falling into a receptive fuel bed at both Site #1 and Site #2, thereby causing the Woolsey Fire.”

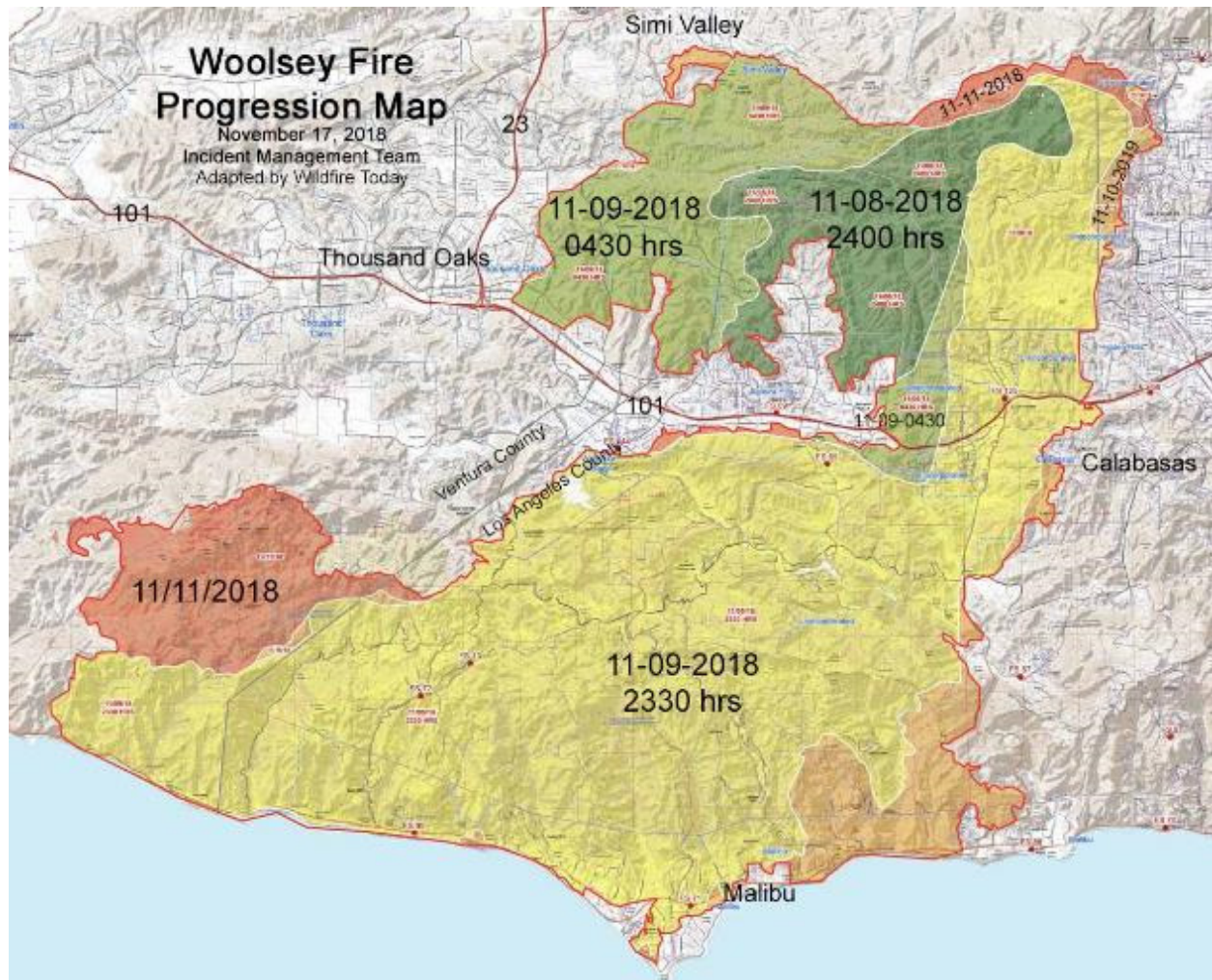


Figure 1: A map of the areas affected by the Woolsey Fire showing its progression over time.¹

¹ <https://wildfiretoday.com/2019/10/23/draft-report-released-for-the-woolsey-fire-has-94-recommendations/>

Investigation Report

A. Violations in Brief:

SED reviewed and analyzed records, inspected and examined physical evidence, and interviewed witnesses related to this incident to determine compliance with Commission rules and regulations. SED's investigation determined that Edison committed 26 violations of Commission rules.

Violations associated with conductors, guy wires, and communication cables supported on Pole number 4534353E at Site 2:

- Four (4) violations of General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires
- Three (3) violations of General Order 95, Rules 56.2 - Use (of Overhead Guys, Anchor Guys and Span Wires)

Violations associated with the overgrown vegetation and the adjacent communication cables at Site 1:

- One (1) violation of General Order 95, Rule 38 – Minimum Clearances of Wires from Other Wires
- One (1) violation of General Order 95, Rule 35 – Vegetation Management
- One (1) violation of General Order 95, Rule 31.1 – Design, Construction, and Maintenance

Other violations at Site 2:

- Two (2) violations of General Order 95, Rule 84.4-D4 – Conductors Passing Supply Poles and Unattached Thereto
- One (1) violation of General Order 95, Rule 92.4-D1 – Exposed Cables and Messengers
- One (1) violation of General Order 95, Rule 83.4B – Messengers of Different Pole Line Systems
- Three (3) violations of General Order 95, Rule 31.1 – Design, Construction, and Maintenance
- One (1) violation of General Order 95, Rule 44.3 – Replacement (of lines or parts thereof)
- One (1) violation of General Order 95, Rule 37 - Minimum Clearances of Wires above Railroads, Thoroughfares, Buildings, Etc.
- One (1) violation of General Order 95, Rule 31.6 – Abandoned Lines

Investigation Report

- Two (2) violations of General Order 95, Rule 18 - Maintenance Programs and Resolution of Potential Violations of General Order 95 and Safety Hazards
- Two (2) violations of General Order 95, Rule 31.2 – Inspection of Lines

Cooperation with Commission staff

- One (1) violation of Public Utilities Code § 316; for failing to cooperate with SED
- One (1) violation of General Order 95, Rule 19, Cooperation with Commission Staff; for failing to cooperate with SED

Investigation Report

II. Background

A. Witnesses:

| No. | Name | Title | Address |
|-----|---------------|----------------------------|---|
| 1 | Derek Fong | SED Investigator | 320 W. 4th St, Los Angeles, CA 90013 |
| 2 | James Miller | SED Investigator | 320 W. 4th St, Los Angeles, CA 90013 |
| 3 | Bryan Pena | SED Investigator | 320 W. 4th St, Los Angeles, CA 90013 |
| 4 | Eric Coolidge | Edison Claims Investigator | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 5 | Scott Hayashi | Edison Claims Investigator | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 6 | [REDACTED] | Edison Cable Splicer | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 7 | [REDACTED] | Edison Senior Patrolman | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 8 | [REDACTED] | Edison Planner | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 9 | [REDACTED] | Edison Cable Foreman | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 10 | [REDACTED] | Edison Troubleman | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 11 | [REDACTED] | Edison Planner | 2244 Walnut Grove Ave, Rosemead, CA 91770 |

Investigation Report

| | | | |
|----|----------------|---|--|
| 12 | ██████████ | Edison General Foreman | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 13 | ██████████ | Edison Production Specialist | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 14 | ██████████ | Edison Cable Splicer | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 15 | ██████████ | Edison System Inspector | 2244 Walnut Grove Ave, Rosemead, CA 91770 |
| 16 | ██████████ | Circle Wood Services Construction Site Representative | 3670 W Temple Ave #273, Pomona, CA 91768 |
| 17 | ██████████ | Contra Costa Electric Supervisor | 3208 Landco Dr, Bakersfield, CA 93308 |
| 18 | ██████████ | Contra Costa Electric Supervisor | 3208 Landco Dr, Bakersfield, CA 93308 |
| 19 | ██████████ | Henkels & McCoy Foreman | 2840 Ficus St, Pomona, CA 91766 |
| 20 | ██████████ | Henkels & McCoy Foreman | 2840 Ficus St, Pomona, CA 91766 |
| 21 | ██████████ | Quanta Utility Services Technician | 2315 W Foothill Blvd, Upland, CA 91786 |
| 22 | Vince Bergland | CalFire Investigator | 210 S Academy Ave Sanger, California |
| 23 | Ryan Miller | Ventura County Fire Department Investigator | 165 Durley Avenue, Camarillo CA 93010 |

Investigation Report

B. Evidence:

| No. | Description |
|-----|---|
| 1 | Email notification to USRB reporting address, Subject: Electric Safety Incident Reported- Southern California Edison Company Incident No: 171205-8645, dated Tuesday, December 05, 2017 |
| 2 | Edison 315 Letter dated December 6, 2018 (Confidential) |
| 3 | SED Data Request SED-001 Edison and responses |
| 4 | SED Data Request SED-002 Edison and responses |
| 5 | SED Data Request SED-003 Edison and responses |
| 6 | SED Data Request SED-004 Edison and responses |
| 7 | SED Data Request SED-005 Edison and responses |
| 8 | SED Data Request SED-001 AT&T and responses |
| 9 | SED Data Request SED-001 Boeing and responses |
| 10 | Photographs Taken by SED Staff |
| 11 | 2015 Fire Report by Ventura County Fire Department |
| 12 | EUO of Substation Workers [REDACTED] |

Investigation Report

C. Description of Edison Facilities

The Woolsey Fire involved two sites of ignition, designated as Sites 1 and 2. The events at Site 2 occurred first and ultimately led to the ignition at Site 1 as well. Site 2 is located at the Santa Susana Field Laboratory (SSFL) about 400 feet south of Chatsworth Substation, and Site 1 is located in a wooded field about one quarter mile east of Site 2.

Site 2

The facilities involved at Site 2 included pole number 4534353E (hereafter referred to as “the Steel Pole”) and pole number 984161E,² a stubbed wooden pole (hereafter “the Stubbed Pole”), located about thirty feet south of the Steel Pole. See Figure 2.



Figure 2: Site 2 as viewed from the north (left) and from the south (right).³

It is a common practice for electrical utility companies to create a Stubbed Pole, also known as a “buddy pole,” in the process of replacing a pole that supports both communications and electrical conductors. First, the new pole is installed near the old one, and then the utility company or its contractor transfers the utility’s conductors from the old pole onto the new one. All communications conductors remain on the old pole, which is then cut or “topped” just above the highest remaining conductor. Afterwards, it is the responsibility of the owner of the communications conductors to move them to the new pole.

² Bates EDISON-SEDWS00013253.

³ Photos taken as part of the SED’s inspection of the sites with CALFIRE.

Investigation Report

Edison staff installed the Steel Pole in March of 2008 to replace two poles, numbered 1528777E and 984161E.⁴ Pole number 1528777E supported three conductors of a 66 kV transmission circuit which Edison transferred to the Steel Pole when it was installed. Pole number 984161E supported four conductors (three energized conductors and one neutral conductor; neutral conductors are not energized) of the 16 kV Big Rock distribution circuit as well as four communications conductors. In May of 2008, Edison's contractor, Hot Line Construction, moved the four conductors of the 16 kV Big Rock circuit on pole number 984161E to the Steel Pole. Hotline staff then cut or "topped" the wood pole above the height of the communications conductors and left it as a stubbed pole.

On the date of the incident, November 8, 2018, the Steel Pole supported facilities at multiple levels: three conductors of a 66 kV Edison transmission circuit, four conductors of the 16 kV Big Rock circuit, and two Edison fiber optic cables.⁵ The Steel Pole also supported several down guy wires, three of which were loose at the time the incident occurred. Two of those loose down guy wires located at site 2 would be involved in the ignition of the Woolsey Fire by acting as conductors on which the fault current would travel.

Overhead circuit designers and planners use down guy wires to provide structural support to utility poles. These wires attach to the pole and to an anchor in the ground, and help poles resist bending forces. Since a wire has no significant compressive strength, they must remain taut in order to provide this support.

One of the loose down guy wires on the Steel Pole was in contact with a messenger wire on the Stubbed Pole. Another loose down guy wire on the Steel Pole would make contact with an energized conductor on the Steel Pole, setting off a chain of events that lead to the two fires.

The Stubbed Pole supported four communications conductors. Two belonged to Edison Carrier Solutions (ECS), but Edison had stopped using the one of them by the time the incident occurred.⁶ The owners of the other two communications conductors could not be determined.

Three of the four communications conductors supported by the Stubbed Pole ran north from the Stubbed Pole and past the Steel Pole. This included the two ECS conductors and one conductor of unknown ownership. These three conductors were deflected by the Steel Pole, but not attached to it. The messenger wire that had previously supported the two ECS conductors running past the steel pole had been broken or cut, and one end of it had been wrapped around the base of the steel pole (this messenger wire will be referred to as "Messenger Wire 3" further in the report; see figure 3). The other end

⁴ Bates EDISON-SEDWS00003624.

⁵ Bates EDISON-SEDWS00013473.

⁶ Bates EDISON-SEDWS00000375.

Investigation Report

of the broken messenger wire was lying on the ground between the Steel Pole and a pole to the north. The northern pole had a pole tag marking it as pole number 1258776E, however Edison's records designate the pole as number 1528776E.



Figure 3: Messenger Wire 3 broken and wrapped around the base of the Steel Pole.⁷

Communications conductors have a low strength-to-weight ratio, so utility companies often use messenger wires to support them and to provide additional strength. A messenger wire is a twisted strand of wires totaling about one-quarter inch in diameter. The messenger wire is attached to the communications conductor by another, smaller wire known as lashing wire, which is wrapped around both the communications conductor and the messenger wire. See Figure 4.

⁷ Photo taken as part of the SED's inspection of the sites with CALFIRE.

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Figure 4: A messenger wire supporting a communications conductor and wrapped with lashing wire. Note that this is a stock image and that this particular communications conductor was not involved in the Woolsey Fire in any way. However, the communications infrastructure involved in the Woolsey Fire was very similar to that depicted in the image.

The Stubbed Pole supported communications conductors that ran to the north, east, and west. The communications conductors running east and west from the pole each had their own messenger wires which were connected together via a “through bolt”, a bolt that penetrated all the way through the pole horizontally. One of the northbound communications conductors also had a messenger wire (Messenger Wire 3, which was wrapped around the base of the Steel Pole), but this messenger wire was not electrically linked to the other two messenger wires on the Stubbed Pole. Messenger Wire 1 ran to the west, and Messenger Wire 2 ran to the east toward Site 1. Although the east-and-westbound messenger wires were separate and distinct, they were electrically connected by the through bolt they had in common. One of the loose down guy wires on the Steel Pole was in contact with Messenger Wire 1 at the time the incident occurred. See Figure 5.

Investigation Report

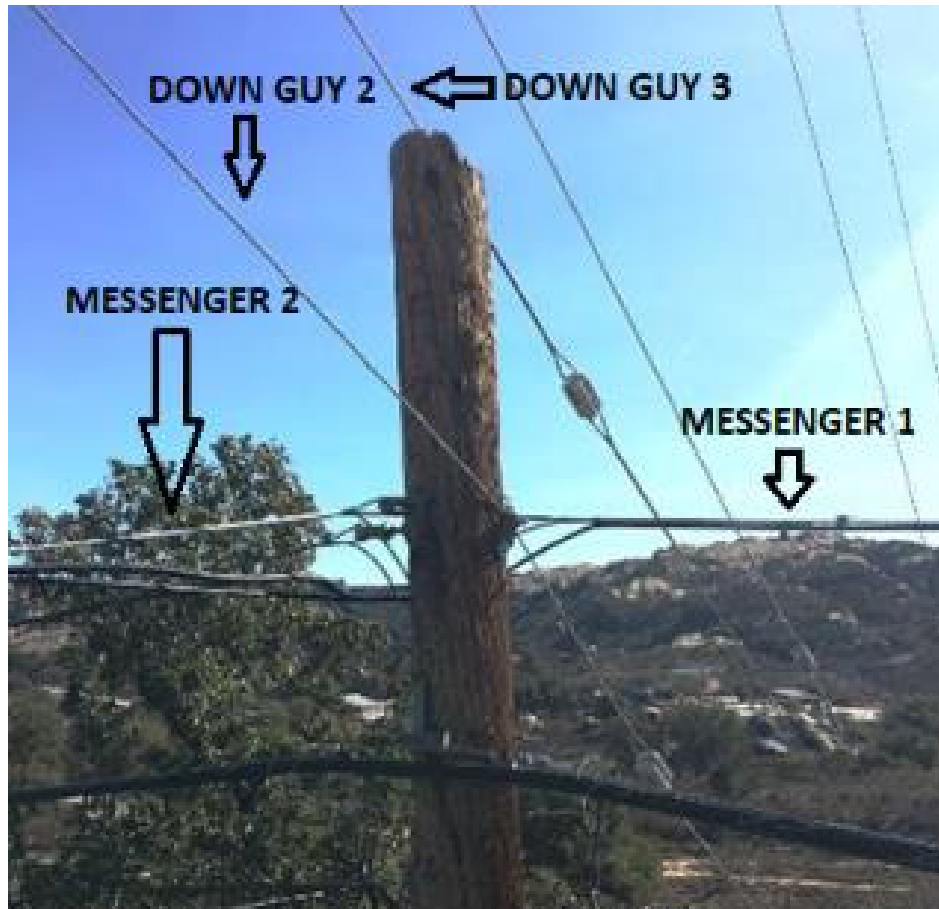


Figure 5: The Stubbed Pole as viewed from the northwest. Note the loose down guy in contact with Messenger Wire 1.⁸

The three messenger wires on the Stubbed Pole had been designed to be bonded together, that is, electrically linked for grounding purposes. Each of the three messenger wires had a wire extension on the end and these ends were designed to be connected to one another by way of bonding clamps, which are small, simple metal clamping devices. However, at the time of the incident, the three messenger wires were not bonded together, although the bonding clamps were present and ineffectually attached to the wire extension on Messenger Wire 1. See Figure 6.

⁸ Photo taken as part of the SED's inspection of the sites with CALFIRE.

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Figure 6: The top of the Stubbed Pole as viewed from the southwest. Note the unattached bonding extension on Messenger Wire 1 in the photograph on the left. On the right is a detail of the extension showing the unused bonding clamps.⁹

The topmost communications conductors on the stubbed pole belonged to Edison Carrier Solutions (ECS). These communications conductors were installed some time before January of 2006¹⁰. The westbound conductor (Cable No. 06044) was no longer in use at the time of the incident.¹¹ The eastbound conductor (Cable No. 06051) was still in use at the time of the incident, although Edison had installed a fiber optic cable for a similar purpose on July 29, 2014.¹²¹³ Cable No. 06051 extended east from Site 2 to Site 1, about one quarter mile away. This communications conductor and its associated messenger guy (referred to as “Messenger Wire 2”) and lashing wire were involved in the ignition at Site 1.

Site 1

Site 1 is located about one quarter mile east of Site 2 between poles numbered 4650857E and 4557126E. These two poles supported some of the same facilities as the Steel Pole at Site 2, including the four conductors of the Big Rock 16 kV circuit and the fiber optic cables. Additionally, these two poles also supported ECS Cable No. 06051 (the one involved in the incident) and two additional communications conductors of unknown ownership. At the time of the incident, overgrown tree branches were pressing the ECS conductor into contact with one of the other communications conductors there. See Figure 7.

⁹ Photos taken as part of the SED’s inspection of the sites with CALFIRE.

¹⁰ Bates EDISON-SEDWS00003986.

¹¹ Bates EDISON-SEDWS00000375

¹² Bates EDISON-SEDWS00013257.

¹³ Bates EDISON-SEDWS00000016

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Figure 7: Overgrown tree branches pressing the ECS communications conductor into the third-party communications conductor at Site 1. The communications conductors separated from their messenger guys when their lashing wires melted during the arcing event.¹⁴

See Figure 8 for a simplified diagram of the facilities at Sites 1 and 2 at the time of the incident.

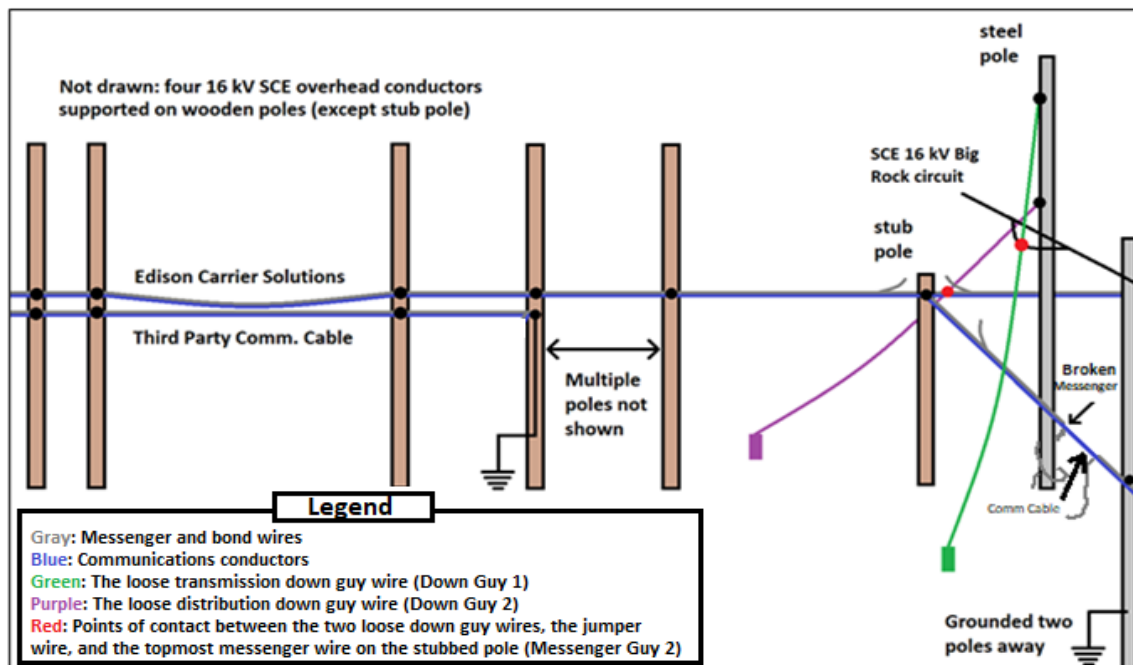


Figure 8: Diagram of the facilities at Site 1 and Site 2. Site 1 is on the left, and Site 2 is on the right.

¹⁴ Photo taken as part of the SED's inspection of the sites with CALFIRE.

Investigation Report

D. Description of Events

On November 8, 2018, the Big Rock circuit out of Chatsworth Substation operated under System Operating Bulletin (SOB) 322¹⁵ due to high winds and low humidity.¹⁶ The area was experiencing sustained wind speeds of 23 miles per hour, wind gusts of up to 37 miles per hour, and a relative humidity of around 7%.¹⁷

Some portions of the chain of events below have not been confirmed by Edison. SED staff has inferred the following events through observation and inspection of evidence at Sites 1 and 2.

At 1422 hours, the Big Rock circuit relayed¹⁸ and locked out when a loose Edison transmission down guy wire ("Down Guy 1") contacted an energized Edison 16 kV jumper wire supported on the Steel Pole (number 4534353E). When Down Guy 1 contacted the jumper wire, an arc flash occurred between the two wires that sprayed hot metal fragments to the ground, igniting the brush below. CalFire designated this ignition site as Site 2.

An arc flash can occur when a large amount of electrical current passes through a small air-filled space between two conductors. The result is a sudden and intense emission of light and heat as the arc reaches temperatures of between approximately 5,000 and 35,000° F. This is hot enough to melt or vaporize most metals (the melting point of stainless steel is about 2,750 °F and the boiling point of iron is 5,184 °F).

When Down Guy 1 contacted the jumper wire, it became energized, which caused the Steel Pole to become energized as well. As a result, a loose Edison distribution down guy wire (Down Guy 2) attached to the Steel Pole also became energized. Down Guy 2 was also in contact with an ECS messenger wire (Messenger Wire 1) via a steel through-bolt that was supported on the Stubbed Pole. This contact caused Messenger Wires 1 and 2 to become energized along with their respective lashing wires. See Figure 9.

¹⁵ SOB 322 requires reclosers to be set to manual.

¹⁶ Edison's Incident Report (315 Letter).

¹⁷ Bates Edison-SEDWS00000107.

¹⁸ SCE's Initial Reporting Email.

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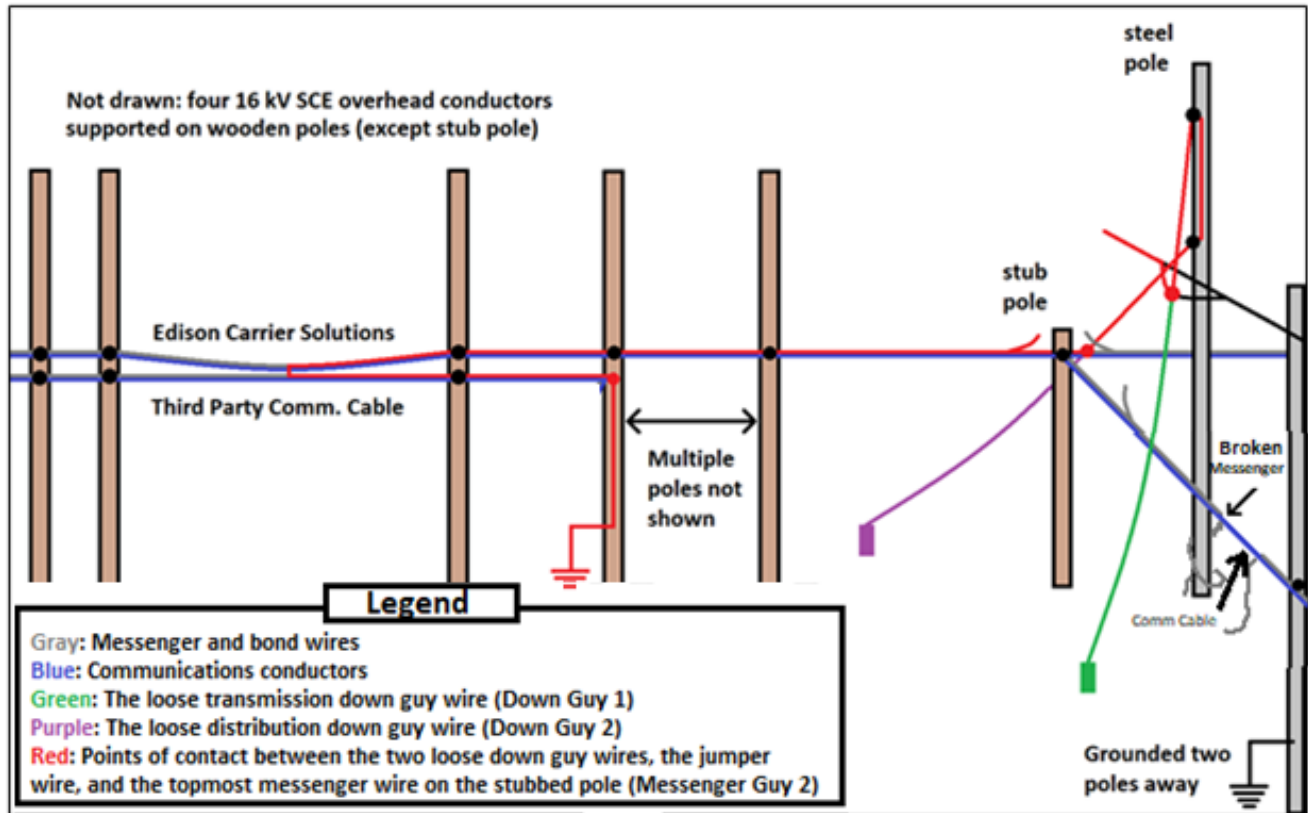


Figure 9: Path of electrical current during the incident. The path of the electric current is represented in red. The loose transmission down guy wire in green made contact with the jumper wire on the Steel Pole, energizing the pole and all its attachments. The loose distribution down guy wire in purple made contact with the messenger wire on the Stubbed Pole. The eastbound messenger wire made contact with the grounded messenger and lashing wires of the third-party communications conductor at Site 1.

About one-quarter mile to the east of Site 2 and between poles 4650857E and 4557126E, Messenger Wire 2 and its lashing wires contacted a third-party messenger wire (Messenger Wire 4) and its lashing wire. Messenger Wire 4 supported a third-party communications conductor of unknown ownership. This contact resulted in a second arc flash that caused the lashing wires to partially melt, fall to the ground, and ignite the brush below it. CalFire designated this ignition site as Site 1.

At 1424 hours, an Edison contractor employee working at Chatsworth Substation called 911 and reported a fire to the south of the substation.¹⁹ Edison reported the incident to SED at 2012 hours that evening.²⁰

¹⁹ EUO of [REDACTED].

²⁰ Bates Edison-SEDWS00000208.

Investigation Report

III. SED's Investigation

A. Observations and Findings

On November 14, 2018, SED Staff visited Site 2. SED Staff observed damage to an Edison transmission down guy wire (Down Guy 1), which was near an Edison 16 kV jumper wire on the east side of the Steel Pole. SED Staff rode an aerial work platform up to the height of the jumper wire and observed damage to the jumper wire and down guy consistent with arcing. Staff measured the radial clearance between the jumper wire and Down Guy 1 and found the clearance to be approximately seven inches. From measurements taken after the incident, Edison also confirmed that the clearance was approximately seven inches.²¹ See Figures 10-14.

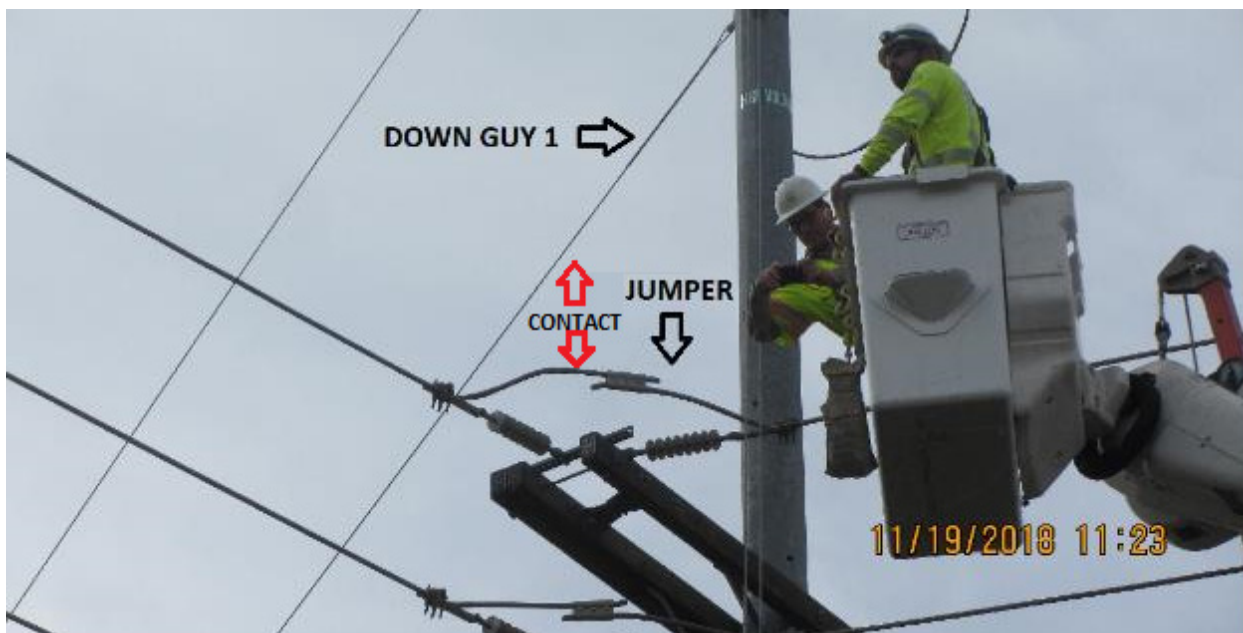


Figure 10: Utility staff taking photographs of the down guy and jumper that made contact on the Steel Pole. Contact occurred between the red arrows.²²

²¹ Bates EDISON-SEDWS00013441.

²² Photo taken as part of the SED's inspection of the sites with CALFIRE.

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Figure 11: A lateral view of Down Guy 1 and the jumper wire taken from an elevated work platform from the northeast.²³



Figure 12: The jumper wire and transmission down guy wire (Down Guy 1) on the Steel Pole. Note the burn marks on the jumper wire and the damage to the down guy wire.²⁴

²³ Photo taken as part of the SED's inspection of the sites with CALFIRE.

²⁴ Photo taken as part of the SED's inspection of the sites with CALFIRE.

Investigation Report



Figure 13: A detail of the damage to the jumper wire on the Steel Pole and the transmission down guy wire, Down Guy 1.²⁵



Figure 14: The jumper and down guy that made contact as viewed from the base of the Steel Pole.²⁶

²⁵ Photo taken as part of the SED's inspection of the sites with CALFIRE.

²⁶ Photo taken as part of the SED's inspection of the sites with CALFIRE.

Investigation Report

Staff observed that Down Guy 1 was loose and had sustained damage consistent with contacting the Edison 16 kV jumper wire. Staff noted that two other Edison down guy wires on the south side of the Steel Pole were also loose. The second loose down guy wire, Down Guy 2, was in contact with Messenger Wire 1 on the Stubbed Pole. The third loose down guy wire, Down Guy 3, was in contact with the top of the Stubbed Pole. Staff observed dark discoloration around the contact point between Down Guy 2 and the ECS through-bolt. See Figures 15-18.



Figure 15: The Steel Pole and Stubbed Pole as viewed from the northeast.

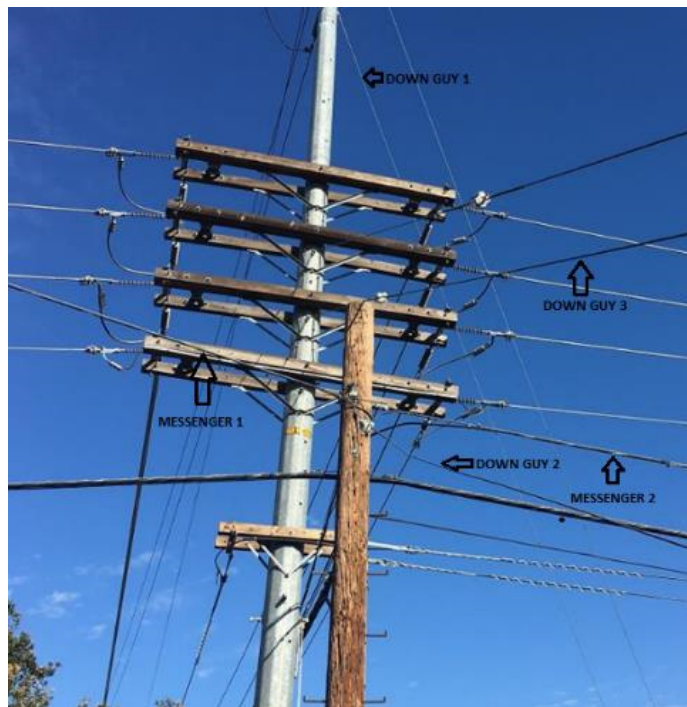


Figure 16: The Stubbed Pole and the Steel Pole as viewed from the south.²⁷

²⁷ Photo taken as part of the SED's inspection of the sites with CALFIRE.

Investigation Report



Figure 17: A closeup of the Stubbed Pole. Note that the bonding extension on Messenger Wire 1 is not attached to anything.²⁸



Figure 18: A detail of the distribution down guy, Down Guy 2, in contact with Messenger Wire 1 and the through bolt on the Stubbed Pole. Note the blackened area on the down guy and the Stubbed Pole at the point of contact.²⁹

²⁸ Photo taken as part of the SED's inspection of the sites with CALFIRE.

²⁹ Photo taken as part of the SED's inspection of the sites with CALFIRE.

Investigation Report

Staff observed that the two ECS communications conductors attached to the Stubby Pole traveled north past the Steel Pole towards Chatsworth substation. The two northbound ECS communications conductors were in contact with the surface of the Steel Pole but not attached to it. See Figure 19.



Figure 19: Communications conductors in contact with the surface of the steel pole, but not attached to it. Viewed from the northeast.³⁰

Moreover, Messenger Wire 3 was broken between the Steel Pole and pole number 1258776E/1528776E. One end of Messenger Wire 3 was wrapped around the base of the Steel Pole and the other end of Messenger Wire 3 was lying on the ground between the poles. See Figure 20.

³⁰ Photo taken as part of the SED's inspection of the sites with CALFIRE.

Investigation Report



Figure 20: Messenger Wire 3 wrapped around the base of the Steel Pole.³¹

Messenger Wire 3 was not bonded to the two other ECS messenger wires (Messenger Wires 1 and 2) that were attached to the through-bolt on the Stubbed Pole, although all three messenger wires had bonding wires and the bonding brackets were present on Messenger Wire 1. Bonding wires are short extensions on the end of messenger guys. They are designed to be connected together with brackets as part of a grounding scheme. See Figure 21.

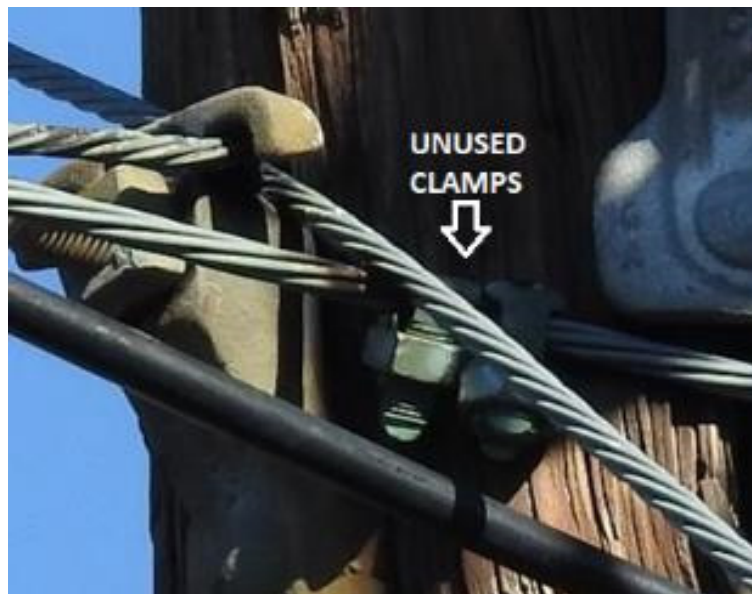


Figure 21: A detail of Messenger Wire 1 and Down Guy 2 showing the unused bonding clamps.³²

³¹ Photo taken as part of the SED's inspection of the sites with CALFIRE.

³² Photo taken as part of the SED's inspection of the sites with CALFIRE.

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At Site 1, Staff observed tree branches pressing into the communications conductors between poles numbered 4650857E and 4557126E. This caused insufficient clearance between the ECS communications conductor supported on Messenger Wire 2 and a third-party communications conductor on Messenger Wire 4. The lashing wires on both communications conductors were damaged, and the messenger wires had separated from the conductors they supported. See Figures 22-24.



Figure 22: Tree branches pressing the communications facilities together at Site 1. Viewed from the southwest from an elevated position.³³

³³ Photo taken as part of the SED's inspection of the sites with CALFIRE.

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Figure 23: Another view of the overgrown tree branches pressing the communications facilities together. Viewed from an elevated position in the south.³⁴



Figure 24: One of the branches pressing the communications conductors together at Site 1.³⁵

³⁴ Photo taken as part of the SED's inspection of the sites with CALFIRE.

³⁵ Photo taken as part of the SED's inspection of the sites with CALFIRE.

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SED Staff used an aerial work platform to observe the damage up close. SED Staff observed burn marks on the messenger wires and found that pieces of lashing wire had been welded onto them. This damage is consistent with electrical arcing between the wires. See Figure 25.



Figure 25: A closeup of damage to a messenger guy and its lashing wire. Pieces of lashing wire were found welded together and also welded to the messenger guy.³⁶

VCFD shared a 2015 fire report with SED that documented a fire that occurred at Site 1 on December 26, 2015.³⁷ VCFD also shared photographs taken on December 26, 2015 that showed overgrown tree branches pushing together the same two communications conductors. CalFire staff reported orally to SED staff that they had found small pieces of lashing wire buried under debris at Site 1 on or around November 14, 2018. It is likely that this 2015 fire occurred in the same manner as the November 8, 2018 fire and that these bits of lashing wire fell there during the 2015 incident. Edison could not provide any evidence of vegetation management taking place between these poles between the dates of November 8, 2008, and November 8, 2018.³⁸ See Figure 26.

³⁶ Photo taken as part of the SED's inspection of the sites with CALFIRE.

³⁷ VCFD's Incident No. 150089467.

³⁸ Bates EDISON-SEDWS00013268.

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Figure 26: On the left are the communications conductors and tree branches as they appeared on November 14, 2018. On the right is a photograph taken by VCFD of the same part of the span in December 2015.³⁹

SED attempted to identify the owners of the second communications conductor at Site 1 but could not determine the owner with certainty.

Edison claimed that AT&T was a joint owner of the two poles at Site 1 as well as the Stubbed Pole at Site 2. However, AT&T denied this.⁴⁰ Edison supported its claim by showing that AT&T had been billed for its portion of the joint pole fees for these poles as recently as November 2017.⁴¹ Edison also provided records from the Southern California Joint Pole Association showing that AT&T was listed as a joint-owner of these poles as of June 29, 2019.⁴² Additionally, Edison claims that it notified AT&T by mail of the planned transfer of facilities from the Stubbed Pole to the Steel Pole at Site 2 on both September 25, 2007 and February 17, 2009.⁴³ The Steel Pole was installed in 2008 as a replacement for pole number 1528777E,⁴⁴ which does not exist anymore.

The Steel Pole was supported by down guys at the transmission and distribution level. Edison's relay records showed that Down Guy 1 had previously contacted the 16 kV jumper wire located on the Steel Pole on January 20, 2017. In 2017, this contact caused a fault on phase A conductor of the Big Rock 16 kV circuit which resulted in a relay and several reclosures until the recloser locked out.⁴⁵ Those records indicate that the fault was caused by a loose down guy wire on the Steel Pole slapping against the 16kV

³⁹ Photo on left taken as part of the SED's inspection of the sites with CALFIRE. Photo on right provided courtesy of VCFD.

⁴⁰ AT&T's Response to SED 001.

⁴¹ Bates EDISON-SEDWS00011715.

⁴² Bates EDISON-SEDWS00012736-00012745.

⁴³ Bates EDISON-SEDWS00013270.

⁴⁴ Bates EDISON-SEDWS00013252.

⁴⁵ Bates EDISON-SEDWS000000097.

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jumper wire. An Edison Troubleman who patrolled the circuit after the recloser locked out in 2017 observed that the down guy wire was loose and noted damage to it near the jumper before tightening the down guy wire.⁴⁶

SED Staff traced Messenger Wire 2 and Messenger Wire 1 for about a mile in both the east and west directions and determined that they were not grounded or connected to ground wires. Edison also confirmed that the messenger was ungrounded.⁴⁷

An electric fault current takes all paths available, including ground, in order to return to the original source of power. Proper grounding, such as the use of ground wires, provides alternative paths for that current to travel and return to the original source of power. The total amount of current will be distributed among each of those paths. The more paths the current has, the less current will travel on each path, and the less energy that will be dissipated by each of them as heat.

Staff observed that Messenger Wire 3 (the broken messenger wire) was bonded to a metal pole with a grounding rod to the north of Site 2. However, since Messenger Wire 3 was broken, it was neither bonded to Messenger Wire 1 nor bonded to Messenger Wire 2. Thus, the grounded portion of Messenger Wire 3 was electrically separated from Messenger Wire 2.⁴⁸

With no grounding devices/wires attached to the messenger wires, the current from the fault event at Site 2 had only one path to ground which was through the messenger and lashing wires of the other communications conductor at Site 1. The contact between the two messenger wires caused arcing and melted parts of the lashing wire and ignited the brush below it. If Messenger Wire 1 or 2 had been properly grounded as prescribed by GO 95, Rule 92.4, some of the fault current would have traveled to ground through that ground connection and less heat would have been produced between the sets of messenger and lashing wires at Site 1. The production of less heat would have reduced chances of the lashing wire melting and igniting the brush below.

⁴⁶ Bates EDISON-SEDWS00013266.

⁴⁷ Bates EDISON-SEDWS00000377.

⁴⁸ The broken messenger guy, i.e. Messenger Wire 3, was noted by an inspector during a May 2018 telecom inspection. Bates EDISON-SEDWS00002892.

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B. Violations

SED reviewed and analyzed records, inspected and examined physical evidence, and interviewed witnesses related to this incident to determine compliance with Commission regulations. SED's investigation discovered 26 violations:

Violation 1

General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires, Table 2, Column F, Case 19, requires the minimum clearance between a down guy wire and an energized, 16 kV conductor to be nine (9) inches.

SED Staff measured the clearance between Down Guy 1(or the loose Edison transmission down guy wire on the Steel Pole) and the Edison 16 kV jumper wire supported on pole number 4534353E (at Site 2) and found it to be approximately seven (7) inches. This clearance was measured with the guy wire at rest (no wind or outside forces that may cause the guy wire to move in any direction). Since the guy wire was less than the minimum mandatory clearance, there was a greater chance for it to make contact with the 16 kV jumper wire due to outside forces, such as wind or any events that may cause the guy wire to move. Edison is in violation of Rule 38 for failing to ensure that Down Guy 1 maintained the minimum required clearance of nine (9) inches from the jumper wire.

Violation 2

General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires, Table 2, Column A, Case 1 requires the vertical clearance between messenger wires and down guy wires not supported on the same poles to be 18 inches.

Down Guy 2, at Site 2, on the south side of pole number 4534353E was touching the through-bolt supporting Messenger Wire 1. Down Guy 2 did not have the minimum required vertical clearance of 18 inches above Messenger Wire 1.

Violation 3

General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires, Table 2, Column A, Case 3 requires the minimum vertical clearance between down guy wires and communications conductors not supported on the same poles to be 24 inches.

Down Guy 2, at Site 2, was touching the through-bolt supporting Messenger Wire 1, which in turn supported ECS communications conductor No. 06044. As shown in Figure 14, Down Guy 2 passed approximately three (3) inches above the ECS communications conductor. Edison is in violation of the Rule 38 for failing to ensure that Down Guy 2 maintained the minimum required vertical clearance of 24 inches above the ECS communications conductor.

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Violation 4

General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires, Table 2, Column C, Case 18 requires the minimum radial separation clearance between “guys passing conductors supported on other poles” and “communications conductors” to be three (3) inches.

Down Guy 2 was touching the through-bolt supporting Messenger Wire 1, which in turn supported ECS communications conductor No. 06044 traveling westbound. Edison is in violation of the Rule 38 for failing to ensure that Down Guy 2 maintained the minimum required radial clearance of three (3) inches from the ECS communications conductor.

Violation 5

General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires, Table 2, Column C, Case 8 requires the minimum vertical clearance between communications conductors supported at different levels on the same pole to be 12 inches.

The ECS communications conductor and the third-party communications conductor supported by poles numbered 4650857E and 4557126E had less than 12 inches of vertical clearance because they were pushed together by vegetation at Site 1. Therefore, Edison is in violation of Rule 38 for failing to ensure that ECS communications conductor No. 06051 maintained a minimum vertical clearance of 12 inches from the third-party communications conductor. This condition most likely existed since at least December of 2015 as shown by photographs taken by VCFD⁴⁹.

Violation 6, 7, and 8

General Order 95, Rule 56.2 – Use states in part:

Guys shall be attached to structures, as nearly as practicable, at the center of load. They shall be maintained taut and of such strength as to meet the safety factors of Rule 44.

Violation 6

Down Guy 1 on pole number 4534353E was loose or not taut, which allowed it to make contact with the 16 kV jumper wire. Edison is in violation of Rule 56.2 for failing to ensure that this down guy wire was maintained taut.

⁴⁹ Ventura County Fire Department's Incident No. 150089647.

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Violation 7

Down Guy 2 on pole number 4534353E was loose or not taut. Edison is in violation of Rule 56.2 for failing to ensure that this down guy wire was maintained taut.

Violation 8

Down Guy 3 on pole number 4534353E was loose or not taut. Edison is in violation of Rule 56.2 for failing to ensure that this down guy wire was maintained taut.

Violations 9 and 10

General Order 95, Rule 84.4-D4 – Conductors Passing Supply Poles and Unattached Thereto states in part:

The center line clearance between poles supporting supply conductors and any communications conductors which pass such poles unattached shall be not less than 22 1/2 inches (1 1/2 times the clearance specified in Table 1, Case 8), except where the supply pole is within 10 feet of the pole on which the communications conductors are supported. Where poles of the two lines are less than 10 feet apart, clearances not less than as specified in Table 1, Case 8, shall be maintained.

The two northbound ECS communications conductors were contacting steel Pole 4534353E but were not attached to the pole. Edison is in violation for Rule 84.4-D4 for failing to ensure that the center line clearance between the two northbound ECS communications conductors and Pole 4534353E was at least 22.5 inches.

Violation 11

General Order 95, Rule 92.4-D1 – Exposed Cables and Messengers states in part:

The exposed communications conductors and messengers shall be grounded: At all deadend poles and at intervals not greater than every one-quarter of a mile (1320 feet).

SED Staff traced Messenger Wire 2 east for approximately one (1) mile and Messenger Wire 1 west for approximately one (1) mile and did not observe any grounding of either messenger wire. Edison is in violation of Rule 92.4-D1 for failing to ground the messenger wires at intervals not greater than every one-quarter of a mile on the exposed ECS communications conductor.

If Messenger Wires 1 and 2 had been properly grounded, the grounding devices may have prevented the ignition of the fire at Site 1 by reducing the amount of current that passed between Messenger Wires 2 and 4 and their respective lashing wires.

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Violation 12

General Order 95, Rule 83.4B – Messengers of Different Pole Line Systems states:

Bonding is required between communication messengers or guys, or both, where the pole line systems intersect at a common pole.

Messenger Wire 3 was not bonded to Messenger Wire 1, nor was it bonded to Messenger Wire 2 at the Stubbed Pole. Edison is in violation of Rule 83.4B for failing to bond messenger wires that intersect at a common pole.

Violations 13, 14, and 15

General Order 95, Rule 31.1 – Design, Construction, and Maintenance states in part:

Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

Violation 13

- Messenger Wires 1, 2, and 3 all had bond wires. One of the bond wires were attached to two grounding brackets, but the bond wires were not connected to each other. None of the three bond wires were used for their intended purpose, i.e. none of the bond wires were bonded together. Edison is in violation of Rule 31.1 for failing to maintain the bond wires for their intended use.

Violation 14

- Messenger Wire 3 was broken. Edison is in violation of Rule 31.1 for failing to maintain Messenger Wire 3 for its intended use. This condition existed since at least May of 2018 when it was discovered during an inspection. This wire also had been in contact with the steel pole without being attached to it since the steel pole had been installed in 2008. Rather than replacing the broken messenger guy wire, an unidentified person had wrapped the south end of the guy wire around the base of the steel pole. Edison could not determine who had wrapped the messenger wire, or even whether or not it was done by an Edison employee.

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Violation 15

- The lashing wire on Messenger Wire 3 was broken. Edison is in violation of Rule 31.1 for failing to maintain the lashing wire for its intended use. This condition existed since at least January of 2018 when Messenger Wire 3 was discovered to be broken during an inspection at that time.⁵⁰

Violations 16 and 17

General Order 95, Rule 18, Reporting and Resolution of Safety Hazards Discovered by Utilities states in part:⁵¹

For purposes of this rule, "Safety Hazard" means a condition that poses a significant threat to human life or property.

...

Each company (including utilities and CIPs) is responsible for taking appropriate corrective action to remedy Safety Hazards and GO 95 nonconformances posed by its facilities.

...

All companies shall establish an auditable maintenance program for their facilities and lines. All companies must include a timeline for corrective actions to be taken following the identification of a Safety Hazard or nonconformances with General Order 95 on the company's facilities.

The auditable maintenance program shall prioritize corrective actions consistent with the priority levels set forth below and based on the following factors, as appropriate:

- *Safety and reliability as specified in the priority levels below;*
- *Type of facility or equipment;*
- *Location, including whether the Safety Hazard or nonconformance is located in the High Fire-Threat District;*
- *Accessibility;*
- *Climate;*

⁵⁰ Bates EDISON-SEDWS00002892

⁵¹ This version of Rule 18 was effective from December 21, 2017 (Decision No.17-12-024) until a further amendment went into effect on June 30, 2019 (Decision No.18-05-042).

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- *Direct or potential impact on operations, customers, electrical company workers, communications workers, and the general public.*

...

There shall be 3 priority levels.

Level 1:

- *Immediate safety and/or reliability risk with high probability for significant impact.*
- *Take action immediately, either by fully repairing the condition, or by temporarily repairing and reclassifying the condition to a lower priority.*

Level 2:

- *Variable (non-immediate high to low) safety and/or reliability risk.*
- *Take action to correct within specified time period (fully repair, or by temporarily repairing and reclassifying the condition to a lower priority).*

Time period for correction to be determined at the time of identification by a qualified company representative, but not to exceed: (1) six months for nonconformances that create a fire risk located in Tier 3 of the High Fire-Threat District; (2) 12 months for nonconformances that create a fire risk located in Tier 2 of the High Fire-Threat District; (3) 12 months for nonconformances that compromise worker safety; and (4) 59 months for all other Level 2 nonconformances.

Level 3:

- *Acceptable safety and/or reliability risk.*
- *Take action (re-inspect, re-evaluate, or repair) as appropriate.*

Violation 16

General Order 95, Rule 18 requires companies to prioritize corrective actions consistent with the three levels set forth in that rule. This applies to both communications and electric facilities. Edison stated in a letter dated November 1, 2019⁵² that Mr. [REDACTED]

⁵² Bates EDISON-SEDWS00013396.

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brought the broken messenger wire (Messenger Wire 3) to Edison's attention as a result of his January 23, 2018 inspection, but that Edison did not assign a priority level to that finding or the corresponding corrective action.

Edison is in violation of General Order 95, Rule 18, for failing to document and assign a priority level to the condition associated with the ECS broken messenger wire.

Violation 17

Edison did not document and prioritize the corrective action for the broken lashing wire during its last inspection in 2018 as required by Rule 18. Edison is in violation of General Order 95, Rule 18 for failing to document and assign a priority level to the condition associated with the ECS broken lashing wire on Messenger Wire 3.

Violations 18 and 19

General Order 95, Rule 31.2, Inspection of Lines states in part:

Lines shall be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard.

Violation 18

General Order 95, Rule 31.2 requires utilities to *thoroughly* inspect their lines. A thorough inspection would have discovered that the messenger wires were unbonded. However, Edison did not create a notification for the unbonded messenger wires (Messenger Wires 1, 2, and 3) on the Stubbed Pole during any of its patrol or detailed inspections during the ten years preceding the November 8, 2018 incident. Edison is in violation of this rule for failing to thoroughly inspect its communications conductors and messenger wires attached to the Stubbed Pole.

Violation 19

A thorough inspection of Edison's facilities at Site 1 would have revealed that the vegetation there was overgrown, and that minimum clearances between Edison's communications conductor and the other communications conductors in the span were not being maintained. These violations were not noted on any inspection forms from between the 2015 fire (the report of which shows that the vegetation in this area was already severely straining the conductors) and the 2018 Woolsey Fire. Edison is in violation of this rule for failing to thoroughly inspect its communications facilities at Site 1 during that period.

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Violation 20

General Oder 95, Rule 31.1 – Design, Construction, and Maintenance, states in part:

For all particulars not specified in General Order 95, a supply or communications company is in compliance with this rule if it designs, constructs and maintains a facility in accordance with accepted good practice for the intended use and known local conditions.

Edison's written procedure for the inspection of communications conductors, Outside Plant Communication Inspection and Maintenance Process, states that detail and patrol inspections should be performed to identify discrepancies and safety hazards⁵³. An inspection that identified discrepancies and safety hazards of Edison's facilities at Site 1 would have revealed that the vegetation there was overgrown, and that minimum clearances between Edison's communications conductor and the other communications conductors in the span were not being maintained. These violations were not noted on any inspection forms from between the 2015 fire (the report of which shows that the vegetation in this area was already severely straining the conductors) and the 2018 Woolsey Fire. Edison is in violation of this rule for failing to inspect its communications facilities at Site 1 according to its own standards, an accepted good practice, during that period.

Violation 21

General Order 95, Rule 44.3 – Replacement states in part:

Lines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to factors such as deterioration and/or installation of additional facilities) in Grades "A" and "B" construction to less than two-thirds of the safety factors specified in Rule 44.1 and in Grade "C" construction to less than one-half of the safety factors specified in Rule 44.1.

Rule 44.3 requires a messenger wire in Grade C construction to be replaced or reinforced before its safety factor is reduced to less one-half of 2, i.e. $0.5 \times 2 = 1.0$. Messenger Wire 3 was broken, meaning that its safety factor became reduced to less than 1.0. Edison is in violation of Rule 44.3 for failing to replace Messenger Wire 3 (which supported two ECS communications conductors) before its safety factor became reduced to less than 1.0. This condition existed since at least May of 2018.

⁵³ Bates EDISON-SEDWS00013388.

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Violation 22

General Order 95, Rule 37, Table 1, Case 5, Column A requires a minimum clearance of eight (8) feet for messenger wires above ground in areas accessible to pedestrians.

Messenger Wire 3 was broken and one end of the broken messenger was found wrapped around the base of Pole 4534353E (the Steel Pole), and the other end lay on the ground. As a result, Messenger Wire 3 had an above ground clearance of approximately zero feet in an area accessible to pedestrians. Therefore, Edison is in violation of the above rule for failing to maintain the minimum above ground clearance of its messenger wire.

Violation 23

General Order 95, Rule 31.6 – Abandoned Lines states:

Lines or portions of lines permanently abandoned shall be removed by their owners so that such lines shall not become a public nuisance or a hazard to life or property. For the purposes of this rule, lines that are permanently abandoned shall be defined as those lines that are determined by their owner to have no foreseeable future use.

Edison stated that communications cable No. 06044 was not in service at the time of the incident.⁵⁴ This abandoned communications conductor was supported by a through-bolt and messenger wire that conducted electrical current from Down Guy 2 to Messenger 2 and caused the ignition at Site 1. If this communications conductor and its supporting components had been removed, no fire could have resulted at Site 1 (Down Guy 2 was resting on the through-bolt connecting this conductor to the Stubbed Pole). Therefore, Edison is in violation of Rule 31.6 for failing to remove its abandoned communications conductor so that it would not become a hazard to life or property.

Violation 24

General Order 95, Rule 35 – Vegetation Management states in part:

When a supply or communication company has actual knowledge, obtained either through normal operating practices or notification to the company, that its circuit energized at 750 volts or less shows strain or evidences abrasion from vegetation contact, the condition shall be corrected by reducing conductor tension, rearranging or replacing the conductor, pruning the vegetation, or placing mechanical protection on the conductor(s).

⁵⁴ Bates EDISON-SEDWS00010375.

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The ECS communications conductor at Site 1 was strained by vegetation to such a degree that it was pushed into a third-party communications conductor (Figures 16-18). Therefore, Edison is in violation of Rule 35 for failing to correct the strain caused by vegetation on the ECS communications conductor.

Violations 25 and 26

General Order 95, Rule 19 - Cooperation with Commission Staff; Preservation of Evidence Related to Incidents Applicability of Rules, states:

Each utility shall provide full cooperation to Commission staff in an investigation into any major accident (as defined in Rule 17) or any reportable incident (as defined in CPUC Resolution E-4184), regardless of pending litigation or other investigations, including those which may be related to a Commission staff investigation. Once the scene of the incident has been made safe and service has been restored, each utility shall provide Commission staff upon request immediate access to:

- o Any factual or physical evidence under the utility or utility agent's physical control, custody, or possession related to the incident;*
- o The name and contact information of any known percipient witness;*
- o Any employee percipient witness under the utility's control;*
- o The name and contact information of any person or entity that has taken possession of any physical evidence removed from the site of the incident;*
- o Any and all documents under the utility's control that are related to the incident and are not subject to the attorney-client privilege or attorney work product doctrine.*

Any and all documents or evidence collected as part of the utility's own investigation related to the incident shall be preserved for at least five years. The Commission's statutory authorization under Cal. Pub. Util. Code §§ 313, 314, 314.5, 315, 581, 582, 584, 701, 702, 771, 1794, 1795, 8037 and 8056 to obtain information from utilities, which relate to the incidents described above, is delegated to Commission staff.

California Public Utilities Code – PU Code § 316, states:

Each electrical corporation shall cooperate fully with the commission in an investigation into any major accident or any reportable incident, as these terms are defined by the commission, concerning overhead electric supply

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facilities, regardless of pending litigation or other investigations, including, but not limited to, those that may be related to a commission investigation.

(a) After the scene of the incident has been made safe and service has been restored, each electrical corporation shall provide the commission, upon its request, immediate access to all of the following:

- (1) Any factual or physical evidence under the electrical corporation's, or its agent's, physical control, custody, or possession related to the incident.*
- (2) The name and contact information of any known percipient witness.*
- (3) Any employee percipient witness under the electrical corporation's control.*
- (4) The name and contact information of any person or entity that has taken possession of any physical evidence removed from the site of the incident.*
- (5) Any and all documents under the electrical corporation's control that are related to the incident and are not subject to attorney-client privilege or attorney work product doctrine.*

(b) Each electrical corporation shall preserve any and all documents or evidence it collects as part of its own investigation related to the incident for at least five years or a shorter period of time as authorized by the commission.

Any and all documents collected by an electrical corporation pursuant to this section shall be catalogued and preserved in an accessible manner for assessment by commission investigators as determined by the commission.

General Order 95, Rule 19 and PU Code § 316 require that utilities cooperate with Commission staff, including SED, for the purposes of investigating accidents.

During the course of its investigation of this incident, SED requested documents from Edison. In one request, SED asked for a comprehensive list of all evidence and records that Edison would be using in its own investigation of the incident.⁵⁵ Edison objected to the request and did not comply, citing the attorney work product doctrine as the basis of its objection. In other incident investigations SED has discovered, through data request inquiries, that Edison creates maintenance, operation and/or repair records beyond the Commission's explicit General Order requirements. As is the case with all electric

⁵⁵ Bates SCE-SED00011709.

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utilities, SED relies on Edison to maintain such internal records for its equipment and programs and provide such records to SED investigators when requested to do so. Under such circumstances, unless Edison had directly provided the records themselves or included such records in a comprehensive list, SED investigators would otherwise be unaware of their existence. By not providing a list of all evidence and records to SED, Edison impeded SED's ability to perform its own evidence review. Furthermore, Edison's actions prevented SED from reviewing all of the records available for the subject equipment or programs involved in the incident that may have contributed to the cause or circumstances that led up to the incident, impeding SED's ability to conduct a thorough investigation.

In another data request, SED asked that Edison provide all photographs, notes, reports, and text messages generated by Edison's first responders, which captured their observations of the start of the incident.⁵⁶ Edison objected to this request and did not comply, citing the attorney work product doctrine as the basis for its objection. Instead, Edison provided Interruption Log Sheets, repair orders, and photographs which were a limited subset of first responder documents that SED requested.

Because the destructive force of a wildfire can quickly alter a scene and destroy evidence, the earliest observations can be critical to understanding the events that occurred and determining the potential findings of an investigation. By not providing the comprehensive set of data and evidence that SED requested, Edison impeded and prolonged SED's investigation. Edison's actions prevented SED from reviewing all available information from the point at which the fire had least disturbed the electric facilities. The actions of Edison's first responders cannot preemptively be under the direction of Edison counsel. Any notes, reports, or text messages that SED requested would not be generated under the direction of Edison counsel and accordingly should not be subject to attorney-client or work product privilege.

For the reasons stated above, SED's investigation determined that Edison is in violation of PU Code § 316 and GO 95, Rule 19 for failing to provide: the list of evidence and records used for Edison's own investigation, as well as photographs, notes, reports, and text messages generated by first responders. In the spirit of full and transparent cooperation with the Commission and its staff, it is imperative that Edison respond to SED data requests with the most comprehensive information available. Without such comprehensive information, SED cannot conduct a thorough investigation, determine the root cause of the incident, expeditiously remedy any issues and prevent future similar incidents from occurring.

⁵⁶ Bates SCE -SEDWS00002827; SEDWS00002827.

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IV. Conclusion

SED's investigation has discovered twenty-six (26) violations:

- (a) Five (5) violation of General Order 95, Rule 38 - Minimum Clearances of Wires from Other Wires
- (b) Three (3) violations of General Order 95, Rule 56.2 – Use
- (c) Two (2) violations of General Order 95, Rule 84.4-D4 – Conductors Passing Supply Poles and Unattached Thereto
- (d) One (1) violation of General Order 95, Rule 92.4-D1 – Exposed Cables and Messengers
- (e) One (1) violation of General Order 95, Rule 83.4B – Messengers of Different Pole Line Systems
- (f) Four (4) violations of General Order 95, Rule 31.1 – Design, Construction, and Maintenance
- (g) One (1) violation of General Order 95, Rule 44.3 – Replacement
- (h) One (1) violation of General Order 95, Rule 37 – Basic Minimum Allowable Clearances of Wires Above Railroads, Thoroughfares, Ground or Water Surfaces, etc.
- (i) One (1) violation of General Order 95, Rule 31.6 – Abandoned Lines
- (j) One (1) violation of General Order 95, Rule 35 – Vegetation Management
- (k) Two (2) violations of General Order 95, Rule 18 - Maintenance Programs and Resolution of Potential Violations of General Order 95 and Safety Hazards
- (l) Two (2) violation of General Order 95, Rule 31.2 – Inspection of Lines
- (m) One (1) violation of Public Utilities Code § 316; for failing to cooperate with Commission Staff
- (n) One (1) violation of General Order 95, Rule 19 – Cooperation with Commission Staff

If SED becomes aware of additional information pertaining to this incident that could modify SED's findings in this incident investigation report, SED may re-open the investigation and may modify this report or take further actions as appropriate.

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Glossary

Circuit breaker: An electrical component that incorporates automatic operation and protective features to monitor, control, and protect downstream circuits from excess current and other potentially damaging electrical transients.

Guy wire: A cable that is placed under tension and that is designed to add stability and support to a free-standing structure. One common configuration of a guy wire is a down guy wire which is connected from a structure (such as a utility pole) to the ground with an anchor.

Messenger wire: a messenger wire, sometimes called a messenger guy, is a tensioned steel wire that is used to support the weight of a communications conductor. This support is achieved by wrapping a steel lashing wire around both the messenger wire and the communications conductor.

Jumper: A piece of wire connecting two conductors to form one continuous electrical path.

Lashing wire: Wire wrapped around a communications conductor and its messenger wire. The lashing wire is used to firmly bind them together.

Lockout: When a circuit breaker relays to lockout, it opens and an additional protective lockout circuit is activated. In these instances, the lockout circuit needs to be manually reset by an operator before the circuit breaker can be closed again. The purpose of the lockout circuit is to notify the operator that one of the protective sensing elements within the circuit breaker control center (also called a Relay) has sensed a problem and that the circuit breaker, as well as the entire circuit to which it is connected, needs to be investigated.

Red Flag Warning (RFW): A warning issued by the National Weather Service to indicate that warm temperatures, very low humidity, and stronger winds are expected to combine to produce an increased risk of fire danger. Thresholds for Los Angeles county where this incident occurred are 25 mile per winds or stronger and a relative humidity below 15%.

Relay (noun): An electrically automated operated switch. It is a programmable microprocessor-based device that provides control, protection, automation, monitoring, and metering for circuit breakers and the electrical distribution circuits to which circuit breakers are electrically connected.

Relay (verb): When a circuit breaker “relays”, it changes positions. It can change from the open position to the closed position or vice versa, based on the design of the control circuit for the circuit breaker. Distribution scale circuit breakers utilize relay circuits for the opening and closing functions of a circuit breaker.

Switch: A device for making and breaking a connection in an electrical circuit.

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System Operating Bulletin (SOB): Southern California Edison (Edison) uses SOBs to define operating procedures, policies, and restrictions for both regular and conditional operations.

Through bolt: A metal bolt that passes completely through a utility pole. Brackets on either side of a through bolt can be used to support messenger guy wires or other equipment.

Exhibit 66

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|----|--------------|---------------|----------|------------|--------------------|--------------------|--------------------|------------------|--------------------|-------------------------------|--|-----------------|----------------------------------|----------------------------------|---------------------|---------------------|----------|-----------------------------|-----------------------------|-----------------------------|------------------------|---------------------|---------------------|-----------------------|
| 1 | Utility Name | Incident Date | Column3 | Column4 | Column5 | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Column17 | Column18 | Field Observations | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 2 | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Suspected Initiating Event | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes | |
| 3 | PG&E | 6/10/14 | 15.14 | 40.2059900 | -122.2533300 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Red Bluff FD | 101545144 | 12,000 | Conductor | Overhead | Yes | | 6/10/14 | 15:14 | Contact From Object | N.A. | Other | Electric Facility | Human Error | Conveyor belt contact |
| 4 | PG&E | 6/12/14 | 6.30 | 38.0437500 | -122.7462400 | Vegetation | Rural | 10 - .99 Acres | Fire Agency | Cal Fire et al | 102230371 | 12,000 | Conductor | Overhead | Yes | 6/12/14 | 6:30 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | | |
| 5 | PG&E | 6/13/14 | 9.19 | 36.9334800 | -121.3885490 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Hollister FD | 101703071 | 21,000 | Conductor | Overhead | Yes | 6/13/14 | 9:19 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 6 | PG&E | 6/14/14 | 8.47 | 37.4190050 | -122.1807700 | Vegetation | Rural | < 3 meters | Unknown | | 100275552 | 12,000 | Conductor | Overhead | Yes | 6/14/14 | 8:47 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 7 | PG&E | 6/14/14 | 11.01 | 37.1309150 | -121.0919180 | Vegetation | Rural | 10 - .99 Acres | Fire Agency | CAL Fire | Pole 000/013 | 70,000 | Conductor | Overhead | Yes | 6/14/14 | 11:01 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | | |
| 8 | PG&E | 6/15/14 | 9.47 | 37.1307740 | -121.9714100 | Vegetation | Urban | < 0.25 Acres | Fire Agency | 23633 Schulteis Rd, Los Gatos | 102633588 | 12,000 | Conductor | Overhead | Yes | 6/15/14 | 9:47 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 9 | PG&E | 6/15/14 | 17.28 | 37.9707710 | -121.9849810 | Vegetation | Urban | < 3 meters | Self Extinguished | | 4239 Teakwood Ct, Concord | 0 - 750 | Conductor | Overhead | Yes | 6/15/14 | 17:28 | Wire-Wire Contact | N.A. | N.A. | Weather | | | |
| 10 | PG&E | 6/15/14 | 20.55 | 39.8878600 | -122.1973690 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 101500805 | 12,000 | Conductor | Overhead | Yes | 6/15/14 | 20:55 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 11 | PG&E | 6/16/14 | 15.37 | 38.1681700 | -120.6074690 | Vegetation | Rural | < 0.25 Acres | Fire Agency | | 101280871 | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 12 | PG&E | 6/17/14 | 13.49 | 38.6667940 | -122.5963970 | Vegetation | Rural | < 3 meters | Fire Agency | Cal Fire | 102247824 | 12,000 | Conductor | Overhead | Yes | 6/17/14 | 13:49 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 13 | PG&E | 6/17/14 | 14.50 | 40.9605800 | -124.0439590 | Vegetation | Rural | < 0.25 Acres | Unknown | | 100979528 | 0 - 750 | Conductor | Overhead | Yes | 6/17/14 | 14:50 | Wire-Wire Contact | N.A. | N.A. | Unknown | | | |
| 14 | PG&E | 6/17/14 | 16.47 | 34.6860900 | -120.4327320 | Vegetation | Rural | < 3 meters | Self Extinguished | | 101894765 | 12,000 | Conductor | Overhead | Yes | 6/17/14 | 16:47 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 15 | PG&E | 6/17/14 | 21.24 | 38.4180400 | -121.1404610 | Vegetation | Rural | 10 - .99 Acres | Unknown | | Tw. 052/320 | 115,000 | Conductor | Overhead | Yes | 6/17/14 | 21:24 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 16 | PG&E | 6/18/14 | 10.01 | 37.8010980 | -121.2021560 | Vegetation | Urban | .26 - 9.99 Acres | Fire Agency | Manteca FD | 102085311 | 17,000 | Conductor | Overhead | Yes | 6/18/14 | 10:01 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 17 | PG&E | 6/18/14 | 18.29 | 37.3175050 | -120.5045050 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Cal Fire | 101162090 | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | | |
| 18 | PG&E | 6/19/14 | 16.32 | 37.9314600 | -121.0214860 | Vegetation | Urban | < 0.25 Acres | Unknown | | 102133758 | 12,000 | Conductor | Overhead | Yes | | | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | | |
| 19 | PG&E | 6/19/14 | 18.54 | 38.7801990 | -121.5007240 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | | 101297449 | 12,000 | Conductor | Overhead | Yes | 6/19/14 | 18:54 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | service conductor | |
| 20 | PG&E | 6/20/14 | 9.47 | 34.8650990 | -120.3206720 | Vegetation | Rural | < 0.25 Acres | Unknown | | 101862409 | 12,000 | Conductor | Overhead | Yes | 6/20/14 | 9:47 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 21 | PG&E | 6/20/14 | 12.00 | 39.6663370 | -122.1968810 | Vegetation | Rural | < 0.25 Acres | Unknown | | 100422609 | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | | |
| 22 | PG&E | 6/20/14 | 14.15 | 40.7802300 | -121.5028700 | Vegetation | Rural | < 0.25 Acres | Fire Agency | | 101520035 | 12,000 | Conductor | Overhead | Yes | 6/20/14 | 14:15 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 23 | PG&E | 6/21/14 | 6.49 | 38.3753000 | -122.5494000 | Vegetation | Rural | < 0.25 Acres | Fire Agency | | 3111 WARM SPRINGS RD, GLEN ELLEN | 12,000 | Conductor | Overhead | Yes | 6/21/14 | 6:49 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 24 | PG&E | 6/21/14 | 14.36 | 38.3644400 | -122.2626490 | Vegetation | Rural | < 3 meters | Fire Agency | Cal Fire | 102286053 | 12,000 | Conductor | Overhead | Yes | 6/21/14 | 14:36 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 25 | PG&E | 6/22/14 | 8.19 | 34.8943990 | -120.4244590 | Vegetation | Urban | < 3 meters | Unknown | | 101864052 | 12,000 | Conductor | Overhead | Yes | 6/22/14 | 8:19 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 26 | PG&E | 6/23/14 | 6.04 | 37.5046000 | -120.0704200 | Vegetation | Rural | < 0.25 Acres | Unknown | | Pole 007/019 | 70,000 | Conductor | Overhead | Yes | 6/23/14 | 6:04 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 27 | PG&E | 6/23/14 | 17.45 | 39.0640240 | -121.0224860 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | | BET. MTR 1007517420 & FUCO 7495 | 12,000 | Conductor | Overhead | Yes | 6/23/14 | 17:45 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 28 | PG&E | 6/24/14 | 7.11 | 38.7485400 | -121.6570600 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Salinas FD | 101712215 | 12,000 | Conductor | Overhead | Yes | 6/24/14 | 7:11 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 29 | PG&E | 6/24/14 | 7.48 | 37.9037000 | -121.6791620 | Other | Urban | < 3 meters | Fire Agency | Contra Costa FD | 100485898 | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | dumpster burned | |
| 30 | PG&E | 6/24/14 | 14.31 | 39.7856800 | -121.9065900 | Vegetation | Rural | 10 - .99 Acres | Fire Agency | Cal Fire | Mtr 36P580 | 12,000 | Conductor | Overhead | Yes | 6/24/14 | 14:31 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 31 | PG&E | 6/24/14 | 16.56 | 37.9740140 | -121.3464620 | Vegetation | Urban | < 0.25 Acres | Unknown | | 103190493 | 12,000 | Conductor | Overhead | Yes | 6/24/14 | 16:56 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 32 | PG&E | 6/24/14 | 17.12 | 38.1109730 | -122.5645120 | Vegetation | Urban | .26 - 9.99 Acres | Fire Agency | Novato Fire Department | 102223842 | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 33 | PG&E | 6/25/14 | 1.36 | 36.8908500 | -121.7174600 | Vegetation | Rural | < 0.25 Acres | Unknown | | 101697469 | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | | |
| 34 | PG&E | 6/25/14 | 8.51 | 34.8830400 | -120.2776190 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | | LD SIDE MTR 1008835806 | 12,000 | Conductor | Overhead | Yes | 6/25/14 | 8:51 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 35 | PG&E | 6/25/14 | 8.53 | 39.0110100 | -120.8960600 | Vegetation | Rural | .26 - 9.99 Acres | Unknown | | Main Line N/O buck to 20340 Spring Garden # 1004520726 | 12,000 | Conductor | Overhead | Yes | 6/25/14 | 8:53 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused | |
| 36 | PG&E | 6/25/14 | 21.47 | 37.9976630 | -121.7691860 | Vegetation | Rural | < 0.25 Acres | Unknown | | 100455766 | 21,000 | Conductor | Overhead | Yes | 6/25/14 | 21:47 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 37 | PG&E | 6/26/14 | 0.15 | 36.8002600 | -119.7937790 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Fresno Fire Dept | 100854012 | 12,000 | Conductor | Overhead | Yes | 6/26/14 | 0:15 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 38 | PG&E | 6/28/14 | 23.37 | 38.8927000 | -121.8809600 | Vegetation | Rural | < 0.25 Acres | Unknown | | 100483886 | 12,000 | Transformer | Overhead | Yes | 6/28/14 | 23:04 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 39 | PG&E | 6/29/14 | 7.59 | 38.7794000 | -121.5055490 | Vegetation | Rural | < 0.25 Acres | Fire Agency | | 101297918 | 0 - 750 | Transformer | Overhead | Yes | 6/29/14 | 7:59 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | | |
| 40 | PG&E | 6/29/14 | 8.23 | 39.0919800 | -121.5430700 | Vegetation | Urban | < 0.25 Acres | Unknown | | SB 15745 ARBOGA RD 500' S/O FURNEAUX RD 2 SP EAST | 12,000 | Conductor | Overhead | Yes | 6/29/14 | 8:23 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 41 | PG&E | 6/29/14 | 19.53 | 38.5208000 | -123.0606700 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 3600 E. AUTSTIN CREEK RD | 12,000 | Conductor | Overhead | Yes | 6/29/14 | 19:53 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 42 | PG&E | 6/30/14 | 14.08 | 38.4491800 | -122.8727700 | Vegetation | Rural | < 0.25 Acres | Unknown | | 102022582 | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 43 | PG&E | 6/30/14 | 18.25 | 39.1449270 | -122.1318820 | Vegetation | Rural | < 0.25 Acres | Unknown | | 101629033 | 12,000 | Conductor | Overhead | Yes | 6/30/14 | 18:25 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 44 | PG&E | 6/30/14 | 20.02 | 36.8080200 | -119.9101390 | Vegetation | Urban | < 0.25 Acres | Unknown | | 100625545 | 21,000 | Conductor | Overhead | Yes | 6/30/14 | 20:02 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 45 | PG&E | 7/1/14 | 3.46 | 37.9004730 | -121.2602580 | Vegetation | Rural | < 0.25 Acres | Unknown | | 2 POLES EAST OF C3412 | 12,000 | Conductor | Overhead | Yes | 7/1/14 | 3:46 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 46 | PG&E | 7/1/14 | 6.43 | 38.0062300 | -122.5430300 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | West Marin Fire | 102258915 | 12,000 | Conductor | Overhead | Yes | 7/1/14 | 6:43 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 47 | PG&E | 7/1/14 | 9.45 | 37.4266900 | -119.8803500 | Vegetation | Rural | .26 - 9.99 Acres | Unknown | | 101065832 | 12,000 | Conductor | Overhead | Yes | 7/1/14 | 9:45 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 48 | PG&E | 7/1/14 | 14.38 | 38.8648700 | -121.7025500 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Yolo FD | 101593404 | 12,000 | Conductor | Overhead | Yes | 7/1/14 | 14:38 | Contact From Object | N.A. | Vehicle | Communication Facility | Human Error | | |
| 49 | PG&E | 7/1/14 | 18.43 | 37.0854220 | -121.7607380 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 6770 Croy Rd, Morgan Hill | 0 - 750 | Conductor | Overhead | Yes | 7/1/14 | 18:43 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 50 | PG&E | 7/2/14 | 13.17 | 38.2545710 | -122.0509280 | Vegetation | Urban | < 0.25 Acres | Fire Agency | | 101556512 | 12,000 | Conductor | Overhead | Yes | 7/2/14 | 13:17 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 51 | PG&E | 7/2/14 | 14.29 | 40.4736600 | -122.4737300 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 101481261 | 12,000 | Conductor | Overhead | Yes | 7/2/14 | 14:29 | Vandalism/Theft | N.A. | N.A. | N.A. | Human Error | Third-party caused | |
| 52 | PG&E | 7/2/14 | 17.17 | 35.0533510 | -119.4087900 | Vegetation | Rural | < 0.25 Acres | Fire Agency | | Mtr. 10044592840 | 0 - 750 | Transformer | Overhead | Yes | 7/2/14 | 17:17 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | | |
| 53 | PG&E | 7/3/14 | 11.37 | 37.3348840 | -120.8510170 | Vegetation | Rural | < 0.25 Acres | Unknown | | 101207072 | 12,000 | Conductor | Overhead | Yes | 7/3/14 | 11:37 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 54 | PG&E | 7/3/14 | 19.22 | 39.4914530 | -121.5384690 | Vegetation | Rural | < 0.25 Acres | Unknown | | 100369965 | 12,000 | Other | Subsurface | Yes | 7/3/14 | 19:22 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | | |
| 55 | PG&E | 7/3/14 | 20.28 | 40.6583840 | -122.3214760 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 11192 | 12,000 | Other | Padmounted | Yes | 7/3/14 | 20:28 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | | |
| 56 | PG&E | 7/4/14 | 1.40 | 39.3337230 | -121.1391380 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 100001697 | 12,000 | Transformer | Overhead | Yes | 7/4/14 | 1:40 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | | |
| 57 | PG&E | 7/4/14 | 6.52 | 37.1840190 | -121.7186040 | Vegetation | Rural | < 3 meters | Unknown | | Sw 73367 | 12,000 | Conductor | Overhead | Yes | 7/4/14 | 6:52 | Contact From Object | | | | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|-----|--------------|------------|----------|------------|--------------------|--------------------|----------|-----------------|--------------------|---|-----------------|-----------------|----------------------------------|-----------|---------------------|-----------|-----------|-----------------------------|-----------------------------|---------------------|------------------------|---------------------|------------------|-----------|
| 1 | Utility Name | Incident # | Column 3 | Column 4 | Column 5 | Column 6 | Column 7 | Column 8 | Column 9 | Column 10 | Column 11 | Column 12 | Column 13 | Column 14 | Column 15 | Column 16 | Column 17 | Column 18 | Column 19 | Column 20 | Column 21 | Column 22 | Column 23 | Column 24 |
| | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Suspected Initiating Event | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes | |
| 119 | PG&E | 8/3/14 | 16.11 | 39.6443750 | -121.7880330 | Vegetation | Rural | < 0.25 Acres | Unknown | MTR 1007460127 | | 12,000 | Conductor | Overhead | Yes | 8/3/14 | 16:11 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 120 | PG&E | 8/4/14 | 4.18 | 37.1062600 | -121.6366690 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Cal Fire | Verizon | 21,000 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vehicle | Communication Facility | Human Error | | |
| 121 | PG&E | 8/5/14 | 0.08 | 38.7804600 | -121.4893690 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 101297005 | | 12,000 | Conductor | Overhead | Yes | 8/5/14 | 0:08 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 122 | PG&E | 8/5/14 | 2.57 | 38.5704300 | -121.1022700 | Vegetation | Rural | < 0.25 Acres | Unknown | 7150 MEARS DR #A AUBURN | | 12,000 | Conductor | Overhead | Yes | 8/5/14 | 2:57 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 123 | PG&E | 8/5/14 | 12.03 | 39.2154990 | -121.3029290 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | Str. 0101122 | | 60,000 | Conductor | Overhead | Yes | 8/5/14 | 12:03 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 124 | PG&E | 8/5/14 | 14.50 | 37.8419700 | -121.6319800 | Vegetation | Rural | < 0.25 Acres | Fire Agency | MTR 1009812709 | | 0 - 750 | Transformer | Overhead | Yes | 8/5/14 | 14:50 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | | |
| 125 | PG&E | 8/5/14 | 16.13 | 37.5634100 | -119.9395000 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | MTR 1006385335 | | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 126 | PG&E | 8/5/14 | 17.12 | 36.9187600 | -119.6766700 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 100725159 | | 0 - 750 | Conductor | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 127 | PG&E | 8/5/14 | 21.41 | 38.0031100 | -122.3270500 | Vegetation | Urban | < 0.25 Acres | Fire Agency | 101426924 | | 0 - 750 | Conductor | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 128 | PG&E | 8/8/14 | 18.17 | 40.0011200 | -122.2260790 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 101530848 | | 12,000 | Conductor | Overhead | Yes | 8/8/14 | 18:17 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 129 | PG&E | 8/9/14 | 2.53 | 38.3011000 | -122.8963300 | Vegetation | Rural | < 0.25 Acres | Unknown | 2 SPANS SOURCE SIDE OF 30501 SHORLINE HWY, FALLON | | 12,000 | Conductor | Overhead | Yes | 8/9/14 | 2:53 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 130 | PG&E | 8/9/14 | 15.36 | 36.6851770 | -119.0449600 | Vegetation | Rural | < 0.25 Acres | Fire Agency | MTR#1005057583 | | 12,000 | Conductor | Overhead | Yes | 8/9/14 | 15:36 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 131 | PG&E | 8/11/14 | 9.23 | 37.9118400 | -120.3488900 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | 2 SPAN LOADSIDE FCO 20835 | | 17,000 | Conductor | Overhead | Yes | 8/11/14 | 9:23 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 132 | PG&E | 8/11/14 | 14.35 | 39.6725230 | -121.4983170 | Vegetation | Rural | < 0.25 Acres | Unknown | Twr 022146 | | 230,000 | Other | Overhead | Yes | 8/11/14 | 14:35 | Contact From Object | N.A. | Other | Electric Facility | Weather | lightning strike | |
| 133 | PG&E | 8/12/14 | 8.58 | 36.7405700 | -121.7616400 | Vegetation | Rural | < 3 meters | Unknown | S/S MONITE RD 4 SPANS S/O NASHUA RD, CASTROVILLE | | 21,000 | Other | Overhead | Yes | 8/12/14 | 8:58 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | | |
| 134 | PG&E | 8/12/14 | 9.42 | 39.2632400 | -121.5948900 | Other | Rural | Structure Only | Unknown | 1012874159 | | 12,000 | Conductor | Overhead | Yes | 8/12/14 | 9:42 | Contact From Object | N.A. | Vehicle | Pole | Human Error | vehicle burned | |
| 135 | PG&E | 8/12/14 | 15.38 | 38.7771100 | -120.2657500 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | WEST SIDE OF SW 6161 | | 21,000 | Conductor | Overhead | Yes | 8/12/14 | 15:38 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 136 | PG&E | 8/14/14 | 10.46 | 38.0123950 | -120.5860520 | Vegetation | Rural | < 3 meters | Unknown | 101272971 | AT&T | 17,000 | Conductor | Overhead | Yes | 8/14/14 | 10:46 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 137 | PG&E | 8/14/14 | 14.57 | 38.5099100 | -122.8371300 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 102028597 | AT&T | 0 - 750 | Conductor | Overhead | Yes | 8/14/14 | 14:57 | Wire-Wire Contact | N.A. | N.A. | N.A. | Unknown | | |
| 138 | PG&E | 8/15/14 | 11.01 | 40.5840531 | -122.4446948 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 101473764 | AT&T | 12,000 | Conductor | Overhead | Yes | 8/15/14 | 11:01 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 139 | PG&E | 8/16/14 | 7.30 | 39.2938500 | -121.6378000 | Vegetation | Rural | < 0.25 Acres | Unknown | mtr # 1007536106 | | 12,000 | Conductor | Overhead | Yes | 8/16/14 | 7:30 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 140 | PG&E | 8/17/14 | 7.27 | 37.3220200 | -119.6344690 | Vegetation | Rural | < 0.25 Acres | Unknown | RISER 10393 | | 12,000 | Conductor | Overhead | Yes | 8/17/14 | 7:27 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 141 | PG&E | 8/17/14 | 17.33 | 35.0578500 | -118.9174880 | Other | Rural | Structure Only | Unknown | 100175838 | | 12,000 | Conductor | Overhead | Yes | 8/17/14 | 17:33 | Contact From Object | N.A. | Vehicle | Pole | Human Error | vehicle burned | |
| 142 | PG&E | 8/19/14 | 3.06 | 37.6325800 | -122.4526290 | Other | Urban | Structure Only | Fire Agency | 100316145 | AT&T | 12,000 | Conductor | Overhead | Yes | 8/19/14 | 3:06 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | vehicle burned | |
| 143 | PG&E | 8/19/14 | 21.05 | 37.8165080 | -120.1321820 | Vegetation | Rural | < 3 meters | Fire Agency | 23111 ELMORE RD, GROVELAND | | 17,000 | Conductor | Overhead | Yes | 8/19/14 | 21:05 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 144 | PG&E | 8/20/14 | 14.22 | 38.8305400 | -121.2014130 | Vegetation | Urban | < 0.25 Acres | Fire Agency | 100051560 | AT&T | 12,000 | Conductor | Overhead | Yes | 8/20/14 | 14:22 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 145 | PG&E | 8/20/14 | 16.07 | 40.1937990 | -123.7677550 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | 103316088 | | 12,000 | Conductor | Overhead | Yes | 8/20/14 | 16:07 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 146 | PG&E | 8/21/14 | 0.00 | 37.3964600 | -121.0715810 | Vegetation | Rural | < 0.25 Acres | Unknown | Eastin Rd, south of Hwy 33, Crows Landing | | 12,000 | Conductor | Overhead | No | | | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 147 | PG&E | 8/23/14 | 8.36 | 37.9862600 | -120.3918290 | Vegetation | Urban | < 0.25 Acres | Fire Agency | 101049418 | AT&T | 17,000 | Conductor | Overhead | No | | | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 148 | PG&E | 8/24/14 | 11.08 | 37.9417917 | -121.3182650 | Vegetation | Urban | < 0.25 Acres | Fire Agency | 102010920 | AT&T | 12,000 | Conductor | Overhead | Yes | 8/24/14 | 11:08 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 149 | PG&E | 8/27/14 | 6.51 | 38.3603100 | -122.0177800 | Vegetation | Urban | < 0.25 Acres | Unknown | foothill w/o auburn, Vacaville | | 12,000 | Conductor | Overhead | Yes | 8/27/14 | 6:51 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 150 | PG&E | 8/27/14 | 15.19 | 38.5929500 | -122.9183300 | Vegetation | Rural | < 0.25 Acres | Unknown | 3103 MILL CREEK RD | | 12,000 | Conductor | Overhead | Yes | 8/27/14 | 15:19 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 151 | PG&E | 8/28/14 | 0.00 | 40.386240 | -122.4068940 | Vegetation | Rural | < 3 meters | Unknown | Gas Point Rd and Happy Valley Rd, Cottonwood | AT&T | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 152 | PG&E | 8/28/14 | 13.51 | 36.2607363 | -119.8573300 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Pole 003003 | | 70,000 | Conductor | Overhead | Yes | 8/28/14 | 13:51 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 153 | PG&E | 8/29/14 | 12.21 | 37.7871100 | -120.1636400 | Vegetation | Rural | < 0.25 Acres | Fire Agency | SP NRP 6567 | | 17,000 | Conductor | Overhead | Yes | 8/29/14 | 19:21 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 154 | PG&E | 8/30/14 | 2.08 | 39.7810900 | -121.8593090 | Vegetation | Urban | < 0.25 Acres | Fire Agency | 100349955 | AT&T | 0 - 750 | Conductor | Overhead | Yes | 8/30/14 | N.A. | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 155 | PG&E | 8/30/14 | 15.40 | 37.6381467 | -121.3334150 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | 102052361 | AT&T | 12,000 | Fuse | Overhead | Yes | 8/30/14 | 15:40 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | | |
| 156 | PG&E | 8/30/14 | 18.34 | 37.3551100 | -121.7978700 | Vegetation | Rural | < 3 meters | Unknown | 100575446 | AT&T | 0 - 750 | Conductor | Overhead | No | | | Wire-Wire Contact | N.A. | N.A. | N.A. | Unknown | | |
| 157 | PG&E | 8/31/14 | 2.12 | 38.4193700 | -122.9466400 | Vegetation | Rural | < 0.25 Acres | Unknown | 2520 SteppsRd, Sebastopol | | 12,000 | Conductor | Overhead | Yes | 8/31/14 | 2:12 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 158 | PG&E | 9/1/14 | 15.58 | 37.0599600 | -122.1662900 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | At FUCO 2541 | | 12,000 | Conductor | Overhead | Yes | 9/1/14 | 15:58 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 159 | PG&E | 9/2/14 | 3.49 | 37.4946250 | -122.1424080 | Vegetation | Urban | < 0.25 Acres | Self Extinguished | Pole 000/003 | | 115,000 | Other | Overhead | Yes | 9/2/14 | 3:49 | Contamination | N.A. | N.A. | N.A. | Weather | | |
| 160 | PG&E | 9/3/14 | 7.05 | 38.3022350 | -120.9474300 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Fuse 8885 | | 12,000 | Transformer | Overhead | Yes | 9/3/14 | 7:05 | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 161 | PG&E | 9/3/14 | 13.21 | 37.9040960 | -122.2296550 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 10N/OF SW 8455, EAST OF WILDCAT CANYON | | 12,000 | Conductor | Overhead | Yes | 9/3/14 | 13:21 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 162 | PG&E | 9/4/14 | 0.34 | 39.1451000 | -122.5817700 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 5 POLES E/O MTR 1007307850 | | 12,000 | Conductor | Overhead | Yes | 9/4/14 | 0:34 | Contact From Object | N.A. | Vehicle | Pole | Human Error | | |
| 163 | PG&E | 9/6/14 | 16.42 | 37.8708200 | -121.3803367 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | 102004435 | | 0 - 750 | Conductor | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 164 | PG&E | 9/7/14 | 8.33 | 36.5907400 | -119.5211590 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 100876971 | AT&T | 12,000 | Conductor | Overhead | Yes | 9/7/14 | 6:33 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 165 | PG&E | 9/9/14 | 9.54 | 39.1530600 | -121.0770600 | Vegetation | Rural | < 0.25 Acres | Unknown | 100066768 | AT&T | 12,000 | Other | Overhead | Yes | 9/9/14 | 9:54 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 166 | PG&E | 9/10/14 | 0.00 | 39.1849600 | -121.6886900 | Vegetation | Rural | < 0.25 Acres | Unknown | North Township Rd, Sutter | | 0 - 750 | Other | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 167 | PG&E | 9/11/14 | 11.39 | 38.5383100 | -121.0650900 | Vegetation | Rural | 26 - 9.99 Acres | Unknown | 1001 BONNIE LN, AUBURN CA | | 12,000 | Conductor | Overhead | Yes | 9/11/14 | 11:39 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 168 | PG&E | 9/12/14 | 5.20 | 38.0281510 | -121.1751640 | Vegetation | Rural | < 0.25 Acres | Unknown | 102127295 | AT&T | 12,000 | Conductor | Overhead | Yes | 9/12/14 | 5:20 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 169 | PG&E | 9/13/14 | 17.25 | 37.5361870 | -120.4900030 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 376 Keyes Rd, Merced | | 0 - 750 | Conductor | Overhead | Yes | 9/13/14 | 17:25 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 170 | PG&E | 9/14/14 | 14.47 | 37.6984900 | -120.1870700 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | Mtr 1006736074 | | 21,000 | Conductor | Overhead | Yes | 9/14/14 | 14:47 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | | |
| 171 | PG&E | 9/15/14 | 19.22 | 37.2451500 | -122.0096090 | Vegetation | Urban | < 3 meters | Fire Agency | 15200 FRUITVALE AVE | | 12,000 | Conductor | Overhead | Yes | 9/15/14 | 19:22 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |
| 172 | PG&E | 9/16/14 | 12.56 | 38.4518180 | -122.3729410 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 102254807 | AT&T | 21,000 | Unknown | Overhead | Yes | 9/16/14 | 12:56 | Contact From Object | N.A. | Vehicle | Communication Facility | Human Error | | |
| 173 | PG&E | 9/17/14 | 8.36 | 36.9311900 | -121.5262400 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | 101720674 | | 12,000 | Conductor | Overhead | Yes | 9/17/14 | 8:36 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | |
|-----|--------------|----------|-------|------------|--------------|--------------------|--------------------|-----------------|-------------------|--------------------------|--|-----------------|-----------------|----------------------------------|------------|---------------------|----------|-------|-----------------------------|-----------------------------|---------------------|--------------------|---------------------|--------------------|--------------------|
| | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Suspected Initiating Event | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 235 | PG&E | 11/8/14 | 15:02 | 38.1820870 | -122.6692940 | Vegetation | Rural | < 3 meters | Customer | | 5450 RED HILL RD | | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 236 | PG&E | 11/9/14 | 6:34 | 37.9419180 | -122.3755040 | Vegetation | Rural | < 3 meters | Fire Agency | RICHMOND PD | 101443361 | AT&T | 12,000 | Conductor | Overhead | Yes | 11/9/14 | 6:34 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 237 | PG&E | 11/14/14 | 12:37 | 37.6510500 | -122.4540800 | Vegetation | Urban | < 3 meters | Fire Agency | PACIFICA FD | ON #4 LINE SIDE OF 11949 & 6053 | | 12,000 | Conductor | Overhead | Yes | 11/14/14 | 12:37 | Contact From Object | N.A. | N.A. | Electric Facility | Human Error | | |
| 238 | PG&E | 11/16/14 | 5:29 | 37.5305067 | -122.5165317 | Vegetation | Rural | < 3 meters | Fire Agency | Cal Fire | 2166 Vallemar Moss beach | | 12,000 | Conductor | Overhead | Yes | 11/16/14 | 5:29 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 239 | PG&E | 11/16/14 | 17:55 | 37.5118320 | -121.9718010 | Vegetation | Urban | < 0.25 Acres | Fire Agency | FREMONT FIRE DEPT | IRO 42979 EVERGLADES PARK DR | | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | N.A. | Other | Electric Facility | Human Error | Soccer ball? |
| 240 | PG&E | 11/17/14 | 17:15 | 38.0444400 | -122.8605650 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | main county fire | 1 SPAN LD. SIDE OF FUCO 6803 | | 12,000 | Conductor | Overhead | Yes | 11/17/14 | 17:15 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | | |
| 241 | PG&E | 11/18/14 | 14:16 | 37.0353000 | -122.0965650 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Felton Fire Dept | 101798988 | | 21,000 | Conductor | Overhead | Yes | 11/18/14 | 14:16 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 242 | PG&E | 11/22/14 | 6:29 | 36.7472340 | -119.7859090 | Vegetation | Urban | < 3 meters | Fire Agency | FRESNO CITY FIRE | MTR# 1008712302 | | 12,000 | Conductor | Overhead | Yes | 11/22/14 | 6:29 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 243 | PG&E | 11/23/14 | 5:45 | 40.1627590 | -122.2381560 | Vegetation | Urban | < 3 meters | Self Extinguished | | MTR #1008299414 | | 12,000 | Conductor | Overhead | Yes | 11/23/14 | 5:45 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 244 | PG&E | 11/24/14 | 15:29 | 37.4401800 | -121.9187970 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Milpitas Fire Department | back yard of 599 Redwood ave | | 0 - 750 | Unknown | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 245 | PG&E | 11/28/14 | 1:17 | 37.9892410 | -122.3146080 | Vegetation | Urban | < 0.25 Acres | Fire Agency | | 101425748 | AT&T | 0 - 750 | Conductor | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 246 | PG&E | 11/29/14 | 14:21 | 36.7278300 | -119.7012190 | Other | Urban | Structure Only | Fire Agency | | 100814277 | AT&T | 0 - 750 | Conductor | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | roof burned | |
| 247 | PG&E | 12/8/14 | 9:51 | 36.8374800 | -119.7899800 | Vegetation | Urban | < 3 meters | Self Extinguished | | 101780312 | | 21,000 | Conductor | Overhead | Yes | 12/8/14 | 9:51 | Contact From Object | N.A. | N.A. | Animal | Electric Facility | Unknown | |
| 248 | PG&E | 12/8/14 | 18:33 | 37.4630670 | -122.2600940 | Vegetation | Urban | < 0.25 Acres | Fire Agency | REDWOOD CITY FD | 100300013 | AT&T | 12,000 | Conductor | Overhead | Yes | 12/8/14 | 18:33 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 249 | PG&E | 12/12/14 | 4:07 | 36.6378500 | -121.5124600 | Vegetation | Rural | < 3 meters | Utility: PG&E | | 101762582 | AT&T | 12,000 | Conductor | Overhead | Yes | 12/12/14 | 4:07 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 250 | PG&E | 12/12/14 | 22:15 | 37.3917950 | -122.2670467 | Vegetation | Rural | < 3 meters | Unknown | | IFO 75 RANCH RD WOODSIDE | | 12,000 | Conductor | Overhead | Yes | 12/12/14 | 22:15 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 251 | PG&E | 12/14/14 | 4:52 | 38.4200500 | -120.8236890 | Other | Rural | Structure Only | Fire Agency | Sutter creek fire | 101238361 | AT&T | 12,000 | Conductor | Overhead | Yes | 12/14/14 | 4:52 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | vehicle burned | |
| 252 | PG&E | 12/19/14 | 13:50 | 37.4609790 | -122.1768610 | Vegetation | Urban | < 3 meters | Fire Agency | MENLO PARK | 100298576 | AT&T | 12,000 | Conductor | Overhead | Yes | 12/19/14 | 13:50 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 253 | PG&E | 12/25/14 | 10:50 | 36.3837160 | -121.8663000 | Vegetation | Rural | < 3 meters | Fire Agency | Mid Valley FD ? | 101669474 | AT&T | 12,000 | Conductor | Overhead | Yes | 12/25/14 | 10:50 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 254 | PG&E | 12/29/14 | 11:58 | 38.1661300 | -122.2536090 | Other | Urban | Structure Only | Fire Agency | VALLEJO FD | 1740 BROADWAY | | 12,000 | Conductor | Overhead | Yes | 12/29/14 | 11:58 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | mobile home burned | |
| 255 | PG&E | 12/30/14 | 9:00 | 38.4058600 | -120.5153240 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 674 SMITTY LN | | 12,000 | Conductor | Overhead | Yes | 12/30/14 | 9:00 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 256 | PG&E | 12/30/14 | 15:53 | 38.0165160 | -122.1366200 | Other | Urban | Structure Only | Fire Agency | MARTINEZ FIRE | 100444078 | | 21,000 | Conductor | Overhead | Yes | 12/30/14 | 15:53 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | vehicle burned | |
| 257 | PG&E | 01/08/15 | 15:18 | 37.36631 | -121.88317 | Other | Rural | < 0.25 Acres | Fire Agency | SJFD | 100566657 | None | 12,000 | Conductor | Subsurface | Yes | 1/8/15 | 15:18 | Contact From Object | N.A. | N.A. | Vehicle | Electric Facility | Human Error | |
| 258 | PG&E | 01/10/15 | 13:07 | 38.08903 | -122.20689 | Vegetation | Urban | < 0.25 Acres | Utility: PG&E | | 102217759 | | 12,000 | Conductor | Overhead | Yes | 1/10/15 | 13:07 | Contact From Object | N.A. | N.A. | Animal | Electric Facility | Unknown | |
| 259 | PG&E | 01/16/15 | 7:07 | 38.77533 | -122.70044 | Vegetation | Rural | < 3 meters | Fire Agency | CAL FIRE | 102167494 | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 260 | PG&E | 01/28/15 | 3:51 | 37.05394 | -122.15987 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | | 12,000 | Conductor | Overhead | Yes | 1/28/15 | 3:51 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 261 | PG&E | 02/08/15 | 6:01 | 38.60589 | -121.02213 | Vegetation | Rural | < 3 meters | Fire Agency | | 6661 Ryan Ranch Road, El Dorado Hills | | 21,000 | Conductor | Overhead | Yes | 2/6/15 | 6:01 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 262 | PG&E | 02/08/15 | 14:08 | 36.40321 | -121.91088 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | CAL FIRE | ladside of 40283 | | 12,000 | Conductor | Overhead | Yes | 2/6/15 | 14:08 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 263 | PG&E | 02/07/15 | 15:13 | 38.08712 | -122.54963 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | NOVATO FIRE DEPARTMENT | 103598139 | | 12,000 | Conductor | Overhead | Yes | 2/7/15 | 15:13 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | | |
| 264 | PG&E | 02/07/15 | 18:38 | 40.46741 | -123.65446 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | mile marker 36.61, hwy 36, bridgeville | | 12,000 | Conductor | Overhead | Yes | 2/7/15 | 18:38 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 265 | PG&E | 02/13/15 | 16:01 | 35.36284 | -118.96615 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Bakersfield FD | 512 Wilma Street, Bakersfield | | 0 - 750 | Conductor | Overhead | Yes | 2/13/15 | 16:01 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 266 | PG&E | 02/16/15 | 11:08 | 37.35996 | -120.85233 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 101206051 | | 12,000 | Conductor | Overhead | Yes | 2/16/15 | 11:08 | Contact From Object | N.A. | N.A. | Vehicle | Pole | Human Error | |
| 267 | PG&E | 02/17/15 | 16:46 | 39.76284 | -121.58268 | Vegetation | Urban | < 3 meters | Fire Agency | butte county | 100324934 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 2/17/15 | 16:46 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 268 | PG&E | 02/22/15 | 14:20 | 38.81600 | -122.18318 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | Capay | 101582201 | | 21,000 | Conductor | Overhead | Yes | 2/22/15 | 14:20 | Contact From Object | N.A. | N.A. | Pole | Human Error | | |
| 269 | PG&E | 02/23/15 | 2:05 | 39.30273 | -121.01749 | Vegetation | Rural | < 3 meters | Fire Agency | NEVADA CITY FIRE | 100086316 | | 12,000 | Conductor | Overhead | Yes | 2/23/15 | 2:05 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 270 | PG&E | 02/23/15 | 13:25 | 38.50453 | -122.08781 | Vegetation | Rural | < 0.25 Acres | Fire Agency | RINCON VALLEY | BEHIND 4870 CARRIAGE LN SANTA ROSA | | 12,000 | Conductor | Overhead | Yes | 2/23/15 | 13:25 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 271 | PG&E | 02/25/15 | 2:34 | 36.75618 | -119.78001 | Vegetation | Urban | < 3 meters | Fire Agency | CITY OF FRESNO | 100869017 | Pacific Bell | 12,000 | Fuse | Overhead | Yes | 2/25/15 | 2:34 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | | |
| 272 | PG&E | 02/25/15 | 16:42 | 34.89210 | -120.50397 | Vegetation | Rural | < 3 meters | Customer | | | | 0 - 750 | Conductor | Overhead | Yes | 2/25/15 | 16:42 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 273 | PG&E | 03/04/15 | 18:44 | 38.99945 | -122.75451 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Kelseyville FD | 102156367 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 3/4/15 | 18:44 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 274 | PG&E | 03/07/15 | 13:35 | 38.70909 | -122.64837 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 14417 western mine rd, Middletown | | 12,000 | Conductor | Overhead | Yes | 3/7/15 | 13:35 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 275 | PG&E | 03/09/15 | 9:36 | 38.73283 | -120.75239 | Building | Urban | Structure Only | Unknown | | 101399208 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 3/9/15 | 9:36 | Contact From Object | N.A. | N.A. | Animal | Electric Facility | Unknown | |
| 276 | PG&E | 03/14/15 | 2:30 | 38.90381 | -122.75790 | Vegetation | Rural | < 0.25 Acres | Unknown | | 9210 Wildcat Road, Kelseyville | | 12,000 | Conductor | Overhead | Yes | 3/14/15 | 2:30 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 277 | PG&E | 03/14/15 | 14:17 | 38.82525 | -121.13632 | Vegetation | Rural | < 3 meters | Fire Agency | LOOMIS FIRE | 100051369 | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | N.A. | Balloons | Electric Facility | Human Error | |
| 278 | PG&E | 03/14/15 | 22:09 | 36.89154 | -121.71191 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 103525395 | | 21,000 | Conductor | Overhead | Yes | 3/14/15 | 22:09 | Contact From Object | N.A. | N.A. | Vegetation | Electric Facility | Unknown | |
| 279 | PG&E | 03/15/15 | 3:26 | 35.36933 | -118.92804 | Vegetation | Urban | < 0.25 Acres | Fire Agency | KERN COUNTY FIRE DEPT | 100216241 | Pacific Bell | 0 - 750 | Unknown | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | | |
| 280 | PG&E | 03/15/15 | 3:38 | 36.93396 | -119.78022 | Vegetation | Rural | < 3 meters | Unknown | | 101121519 | None | 21,000 | Conductor | Overhead | Yes | 3/15/15 | 3:38 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | | |
| 281 | PG&E | 03/15/15 | 22:47 | 38.33457 | -120.53253 | Vegetation | Rural | < 3 meters | Fire Agency | CAL FIRE | 103106530 | | 12,000 | Conductor | Overhead | Yes | 3/15/15 | 22:47 | Contact From Object | N.A. | N.A. | Vehicle | Pole | Human Error | |
| 282 | PG&E | 03/19/15 | 20:11 | 37.84163 | -122.12176 | Vegetation | Urban | < 3 meters | Fire Agency | moraga fire | 100498544 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 3/19/15 | 20:11 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 283 | PG&E | 03/21/15 | 10:46 | 40.16448 | -122.28939 | Vegetation | Rural | < 3 meters | Fire Agency | CAL FIRE | 101546309 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 3/21/15 | 10:46 | Contact From Object | N.A. | N.A. | Vehicle | Pole | Human Error | |
| 284 | PG&E | 03/21/15 | 11:03 | 36.56658 | -121.51428 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Monterey Regional | 101758338 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 3/21/15 | 11:03 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 285 | PG&E | 03/31/15 | 13:33 | 37.11247 | -120.94326 | Vegetation | Rural | < 3 meters | Fire Agency | COUNTY FIRE | 101199839 | | 0 - 750 | Conductor | Overhead | Yes | 3/31/15 | 13:33 | Contact From Object | N.A. | N.A. | Animal | Electric Facility | Unknown | |
| 286 | PG&E | 04/02/15 | 9:44 | 39.67722 | -121.49198 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 100338726 | | 12,000 | Conductor | Overhead | Yes | 4/2/15 | 9:44 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 287 | PG&E | 04/04/15 | 16:49 | 38.88245 | -122.59135 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 20748 Jerusalem Grade Road, Middletown | | 12,000 | Other | Overhead | Yes | 4/4/15 | 16:49 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | Booster | |
| 288 | PG&E | 04/ | | | | | | | | | | | | | | | | | | | | | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|-----|--------------|----------|-------|----------|------------|--------------------|--------------------|------------------|-------------------|------------------------------------|---|-----------------|-----------------|----------------------------------|----------|---------------------|---------|-----------------------------|-----------------------------|-----------------------------|---------------------|--------------------|----------------------|-----------------------|
| | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Suspected Initiating Event | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 351 | PG&E | 06/05/15 | 9:58 | 40.10703 | -123.71422 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | 100986799 | | 12,000 | Conductor | Overhead | Yes | 6/5/15 | 9:58 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | tie wire |
| 352 | PG&E | 06/05/15 | 14:40 | 37.95777 | -120.45191 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 101012484 | | 17,000 | Conductor | Overhead | Yes | 6/5/15 | 14:40 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 353 | PG&E | 06/05/15 | 15:15 | 36.77591 | -119.77027 | Vegetation | Urban | < 0.25 Acres | Fire Agency | CITY OF FRESNO | 100857009 | Pacific Bell | 0 - 750 | Transformer | Overhead | Yes | 6/5/15 | 15:15 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 354 | PG&E | 06/05/15 | 22:13 | 38.77290 | -121.46992 | Vegetation | Rural | < 3 meters | Fire Agency | WATER | 100064053 | | 12,000 | Capacitor Bank | Overhead | Yes | 6/5/15 | 22:13 | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 355 | PG&E | 06/06/15 | 11:24 | 39.80295 | -121.90643 | Vegetation | Rural | < 3 meters | Unknown | | 100433862 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 6/6/15 | 11:24 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 356 | PG&E | 06/06/15 | 12:00 | 36.98282 | -120.03390 | Vegetation | Rural | < 0.25 Acres | Unknown | | 101015092 | | 12,000 | Lightning Arrestor | Overhead | Yes | 6/6/15 | 12:00 | Equipment/ Facility Failure | Lightning Arrestor | N.A. | N.A. | Unknown | |
| 357 | PG&E | 06/06/15 | 15:39 | 39.04089 | -123.40189 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 11480 ANDERSON VALLEY WAY @ BRIDGE | | 12,000 | Conductor | Overhead | Yes | 6/6/15 | 15:39 | Contact From Object | Vegetation | N.A. | N.A. | Unknown | |
| 358 | PG&E | 06/08/15 | 21:17 | 38.00575 | -121.23822 | Vegetation | Rural | < 0.25 Acres | Fire Agency | COUNTY FIRE | 102135759 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 6/6/15 | 21:17 | Contact From Object | Balloons | N.A. | N.A. | Electric Facility | Human Error |
| 359 | PG&E | 06/07/15 | 5:05 | 36.69600 | -119.74880 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | FRESNO FIRE | 103339346 | | 12,000 | Conductor | Overhead | Yes | 6/7/15 | 5:05 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 360 | PG&E | 06/07/15 | 14:53 | 36.32160 | -121.28363 | Vegetation | Rural | < 0.25 Acres | Fire Agency | monterey county | peach and thorne greenfield | Pacific Bell | 12,000 | Unknown | Overhead | Yes | 6/7/15 | 14:53 | Unknown | N.A. | N.A. | Unknown | | |
| 361 | PG&E | 06/07/15 | 17:48 | 38.21794 | -121.97524 | Vegetation | Rural | 100 - 299 Acres | Fire Agency | Suisun fire protection district. | o/o's 278361 | | 21,000 | Conductor | Overhead | Yes | 6/7/15 | 17:48 | Vandalism/Theft | N.A. | N.A. | Human Error | gun-shot conductor | |
| 362 | PG&E | 06/08/15 | 14:18 | 38.17956 | -120.95899 | Vegetation | Rural | 100 - 99 Acres | Fire Agency | CAL FIRE | 102048579 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 6/8/15 | 14:18 | Contact From Object | N.A. | N.A. | Human Error | | |
| 363 | PG&E | 06/08/15 | 16:12 | 38.11554 | -122.55622 | Vegetation | Rural | < 3 meters | Fire Agency | novato fire | front yard 9 equestrian ct | | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | N.A. | Unknown | | |
| 364 | PG&E | 06/08/15 | 16:15 | 39.82356 | -123.60931 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | 2 spans loadside 1741 | | 12,000 | Conductor | Overhead | Yes | 6/8/15 | 16:15 | Contact From Object | N.A. | N.A. | Unknown | | |
| 365 | PG&E | 06/08/15 | 17:38 | 37.95620 | -121.94406 | Vegetation | Urban | < 3 meters | Unknown | | 17325 | | 0 - 750 | Conductor | Overhead | Yes | 6/8/15 | 17:38 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 366 | PG&E | 06/08/15 | 18:32 | 37.94040 | -122.07949 | Vegetation | Urban | < 3 meters | Fire Agency | CONTRA COSTA FIRE | 100492348 | Pacific Bell | 12,000 | Fuse | Overhead | Yes | 6/8/15 | 18:32 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | |
| 367 | PG&E | 06/09/15 | 1:19 | 40.54242 | -122.23906 | Vegetation | Rural | < 3 meters | Customer | | 101490096 | Frontier | 12,000 | Transformer | Overhead | Yes | 6/9/15 | 1:19 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 368 | PG&E | 06/09/15 | 11:51 | 36.48868 | -119.58237 | Building | Rural | Structure Only | Fire Agency | tulare county fire | 4390 ave 352 | | 12,000 | Conductor | Overhead | Yes | 6/9/15 | 11:51 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 369 | PG&E | 06/09/15 | 13:10 | 38.11758 | -121.15094 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | WATERLOO MORADA FIRE DISTRICT | 102076487 | | 21,000 | Conductor | Overhead | Yes | 6/9/15 | 13:10 | Contact From Object | N.A. | N.A. | Human Error | | |
| 370 | PG&E | 06/09/15 | 15:24 | 38.36510 | -122.25410 | Vegetation | Rural | 100 - 99 Acres | Fire Agency | CAL FIRE | load side 2987 | Yes | 21,000 | Conductor | Overhead | Yes | 6/9/15 | 15:24 | Contact From Object | N.A. | N.A. | Unknown | | |
| 371 | PG&E | 06/09/15 | 16:20 | 38.38222 | -122.43156 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 102269716 | Pacific Bell | 21,000 | Unknown | Overhead | Yes | 6/9/15 | 16:20 | Unknown | N.A. | N.A. | Unknown | | |
| 372 | PG&E | 06/09/15 | 21:21 | 38.93940 | -121.24670 | Vegetation | Rural | < 3 meters | Unknown | | 100035304 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 6/9/15 | 21:21 | Contact From Object | N.A. | N.A. | Unknown | | |
| 373 | PG&E | 06/10/15 | 12:00 | 39.13763 | -121.63145 | Vegetation | Urban | < 0.25 Acres | Fire Agency | YUBA CITY | 101320887 | | 12,000 | Conductor | Overhead | Yes | 6/10/15 | 12:00 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 374 | PG&E | 06/10/15 | 17:02 | 36.96710 | -120.03052 | Vegetation | Rural | < 3 meters | Unknown | | 101216691 | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Unknown | N.A. | N.A. | Unknown | | |
| 375 | PG&E | 06/10/15 | 21:43 | 37.63812 | -121.89433 | Vegetation | Rural | < 3 meters | Fire Agency | PLEASANTON FIRE DEPT. | 100927124 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 6/10/15 | 21:43 | Contact From Object | N.A. | N.A. | Unknown | | |
| 376 | PG&E | 06/11/15 | 18:32 | 38.82212 | -121.30805 | Vegetation | Urban | < 0.25 Acres | Fire Agency | CITY OF ROCKLIN/ CAL FIRE | 103661493 | | 21,000 | Switch | Overhead | Yes | 6/11/15 | 18:32 | Equipment/ Facility Failure | Switch | N.A. | N.A. | Unknown | |
| 377 | PG&E | 06/12/15 | 9:04 | 39.39398 | -122.22991 | Vegetation | Rural | < 0.25 Acres | Fire Agency | WILLOWS FIRE DEPT. | 100326792 | | 21,000 | Conductor | Overhead | Yes | 6/12/15 | 9:04 | Contact From Object | N.A. | N.A. | Human Error | crop duster hit line | |
| 378 | PG&E | 06/12/15 | 9:24 | 37.07609 | -120.20027 | Vegetation | Rural | < 3 meters | Self Extinguished | | 103204949 | Pacific Bell | 0 - 750 | Conductor | Overhead | Yes | 6/12/15 | 9:24 | Unknown | N.A. | N.A. | Unknown | | |
| 379 | PG&E | 06/12/15 | 10:48 | 38.42732 | -122.85903 | Vegetation | Rural | < 0.25 Acres | Fire Agency | GRATON FIRE DEP. | 102023459 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 6/12/15 | 10:48 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 380 | PG&E | 06/12/15 | 13:07 | 40.40775 | -122.41037 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | ACROSS STREET FROM 4139 OLD HAPPY VALLEY RD | | 12,000 | Lightning Arrestor | Overhead | No | | | Equipment/ Facility Failure | Lightning Arrestor | N.A. | N.A. | Unknown | |
| 381 | PG&E | 06/12/15 | 16:01 | 37.92517 | -122.07817 | Vegetation | Urban | < 3 meters | Fire Agency | WALNUT CREEK FIRE | 100478251 | Pacific Bell | 0 - 750 | Transformer | Overhead | Yes | 6/12/15 | 16:01 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 382 | PG&E | 06/12/15 | 23:32 | 39.23077 | -121.15594 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 10903 PROSPECTOR RD. ROUGH AND READY | Pacific Bell | 21,000 | Conductor | Overhead | Yes | 6/12/15 | 23:32 | Contact From Object | N.A. | N.A. | Unknown | | |
| 383 | PG&E | 06/13/15 | 12:50 | 35.27221 | -118.91221 | Vegetation | Rural | < 3 meters | Fire Agency | Kern Co Fire Dept | 103779942 | | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 384 | PG&E | 06/14/15 | 12:19 | 39.74316 | -121.84249 | Vegetation | Urban | < 3 meters | Fire Agency | CHICO FIRE DEPT | 100426686 | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Wire-Wire Contact | N.A. | N.A. | Unknown | | |
| 385 | PG&E | 06/14/15 | 13:50 | 36.93633 | -119.87030 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | 12915 mesa, madera | | 21,000 | Conductor | Overhead | Yes | 6/14/15 | 13:50 | Contact From Object | N.A. | N.A. | Electric Facility | Unknown | |
| 386 | PG&E | 06/15/15 | 18:35 | 38.18518 | -121.75950 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | 1008115 | Pacific Bell | 21,000 | Conductor | Overhead | Yes | 6/15/15 | 18:35 | Contact From Object | N.A. | N.A. | Human Error | | |
| 387 | PG&E | 06/16/15 | 10:40 | 38.00621 | -122.10918 | Vegetation | Urban | .26 - 9.99 Acres | Unknown | | 12915 mesa, madera | | 115,000 | Conductor | Overhead | Yes | 6/16/15 | 10:40 | Contact From Object | Other | N.A. | N.A. | Unknown | bird-dropped material |
| 388 | PG&E | 06/16/15 | 11:27 | 39.03816 | -122.92637 | Vegetation | Rural | < 0.25 Acres | Fire Agency | LAKEPORT FIRE | 102165174 | Pacific Bell | 0 - 750 | Conductor | Overhead | Yes | 6/16/15 | 11:27 | Contact From Object | N.A. | N.A. | Unknown | | |
| 389 | PG&E | 06/17/15 | 10:32 | 37.76881 | -120.90776 | Vegetation | Rural | < 3 meters | Fire Agency | Escalon fire dept. | 10055778 | Pacific Bell | 17,000 | Conductor | Overhead | Yes | 6/17/15 | 10:32 | Contact From Object | N.A. | N.A. | Human Error | | |
| 390 | PG&E | 06/17/15 | 15:49 | 37.35161 | -120.64202 | Vegetation | Rural | < 3 meters | Fire Agency | CAL FIRE | 8503 LONGVIEW ATWATER | | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 391 | PG&E | 06/17/15 | 18:35 | 35.33024 | -119.01164 | Vegetation | Urban | < 3 meters | Fire Agency | BCFD | 100155778 | Pacific Bell | 21,000 | Conductor | Overhead | Yes | 6/17/15 | 18:35 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 392 | PG&E | 06/19/15 | 12:14 | 34.83564 | -120.38433 | Vegetation | Rural | 100 - 99 Acres | Fire Agency | SANTA BARBRA COUNTY FIRE DEPT | 103015189 | | 12,000 | Conductor | Overhead | Yes | 6/19/15 | 12:14 | Contact From Object | N.A. | N.A. | Unknown | | |
| 393 | PG&E | 06/19/15 | 20:09 | 39.15973 | -121.48652 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 101308410 | Pacific Bell | 0 - 750 | Conductor | Overhead | Yes | 6/19/15 | 20:09 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 394 | PG&E | 06/20/15 | 1:28 | 36.25480 | -119.64349 | Vegetation | Rural | < 3 meters | Fire Agency | CAL FIRE | 100021218 | | 12,000 | Conductor | Overhead | Yes | 6/20/15 | 1:28 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 395 | PG&E | 06/21/15 | 1:32 | 39.00797 | -121.34400 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | Transmission Sw 159 on the Pease - Rio-Oso 115kv line | | 12,000 | Conductor | Overhead | Yes | 6/21/15 | 1:32 | Contact From Object | N.A. | N.A. | Unknown | | |
| 396 | PG&E | 06/21/15 | 3:17 | 39.09559 | -121.54211 | Vegetation | Rural | 100 - 99 Acres | Fire Agency | Wheatland fire dept | 100021218 | | 115,000 | Transformer | Overhead | Yes | 6/21/15 | 3:17 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | Potential transformer |
| 397 | PG&E | 06/21/15 | 12:07 | 36.72248 | -121.76673 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | NORTH COUNTY FIRE DEPARTMENT #1428 | None | 21,000 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 398 | PG&E | 06/21/15 | 12:10 | 37.92730 | -122.31824 | Vegetation | Urban | < 0.25 Acres | Fire Agency | RICHMOND | KEY BLVD. | Pacific Bell | 4,000 | Conductor | Overhead | Yes | 6/21/15 | 12:10 | Contact From Object | N.A. | N.A. | Human Error | | |
| 399 | PG&E | 06/21/15 | 12:31 | 38.83173 | -121.16423 | Vegetation | Rural | < 3 meters | Fire Agency | pennyn fire dept | 100050933 | Pacific Bell | 0 - 750 | Transformer | Overhead | No | | | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 400 | PG&E | 06/21/15 | 12:46 | 38.00167 | -121.29768 | Vegetation | Urban | < 0.25 Acres | Fire Agency | STOCKTON F.D | 102138737 | | 12,000 | Conductor | Overhead | Yes | 6/21/15 | 12:46 | Contact From Object | N.A. | N.A. | Human Error | | |
| 401 | PG&E | 06/21/15 | 13:31 | 37.37504 | -119.61162 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 103204866 | | 0 - 750 | Conductor | Overhead | No | | | Wire-Wire Contact | N.A. | N.A. | Unknown | | |
| 402 | PG&E | 06/22/15 | 11:58 | 39.13733 | -121.06674 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | SENTINAL WY | | 12,000 | Conductor | Overhead | Yes | 6/22/15 | 11:58 | Contact From Object | N.A. | N.A. | Unknown | | |
| 403 | PG&E | 06/22/15 | 18:56 | 36.98705 | -121.53811 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Gilroy city fire | 102354046 | | 21,000 | Conductor | Overhead | Yes | 6/22/15 | 18:56 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 404 | PG&E | 06/23/15 | 15:23 | 39.05512 | -121.56103 | Vegetation | Rural | < 0.25 Acres | Fire Agency | LINDA FIRE DEPT | 102344528 | | 12,000 | Conductor | Overhead | Yes | 6/23/15 | 15:23 | Contact From Object | N.A. | N.A. | Human Error | | |
| 405 | PG&E | 06/23/15 | 17:20 | 37.94531 | -120.93370 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | 102344528 | | 12,000 | Conductor | Overhead | Yes | 6/23/15 | 17:20 | Contact From Object | N.A. | N.A. | Unknown</ | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | |
|-----|--------------|------------|----------|-----------|--------------------|--------------------|-------|------------------|--------------------|-------------------------------|-----------------|---|----------------------------------|--------------------|---------------------|------|---------|----------------------------|-----------------------------|------------------------|--------------------|---------------------|-------------------|-------------|-------------------------|
| | Utility Name | Inc. Entry | Column3 | | | | | | | | | | | | | | | | | | | | | | |
| | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Suspected Initiating Event | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 467 | PG&E | 07/16/15 | 19:11 | 37.19894 | -119.77123 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | | 20334 ROAD 400 | 12,000 | Conductor | Overhead | Yes | 7/16/15 | 19:11 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | | |
| 468 | PG&E | 07/16/15 | 19:27 | 37.76190 | -120.82127 | Vegetation | Urban | < 3 meters | Self Extinguished | | Pacific Bell | 102333491 | 0 - 750 | Conductor | Overhead | Yes | 7/16/15 | 19:27 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 469 | PG&E | 07/17/15 | 0:20 | 36.96718 | -119.64365 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | 100651276 | 0 - 750 | Conductor | Overhead | Yes | 7/17/15 | 0:20 | Wire-Wire Contact | | N.A. | N.A. | Unknown | | |
| 470 | PG&E | 07/17/15 | 0:53 | 34.86820 | -120.32300 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | SANTA BARBRA COUNTY FIRE DEPT | | EAST OF SISQUOC SUB | 12,000 | Conductor | Overhead | Yes | 7/17/15 | 0:53 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | | |
| 471 | PG&E | 07/17/15 | 17:18 | 38.55961 | -121.64346 | Vegetation | Rural | < 3 meters | Unknown | | | in mid span between 2 poles. @ 46735 co. rd. 32B davis | 12,000 | Conductor | Overhead | Yes | 7/17/15 | 17:18 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 472 | PG&E | 07/18/15 | 17:00 | 38.93826 | -123.62868 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | | off HWY 1 PA | 12,000 | Conductor | Overhead | Yes | 7/18/15 | 17:00 | Contact From Object | | N.A. | Electric Facility | Unknown | | |
| 473 | PG&E | 07/18/15 | 18:59 | 39.71199 | -123.32836 | Vegetation | Rural | .26 - 9.99 Acres | Unknown | | | | 12,000 | Conductor | Overhead | Yes | 7/18/15 | 18:59 | Contact From Object | | N.A. | Electric Facility | Unknown | | |
| 474 | PG&E | 07/19/15 | 9:44 | 35.21499 | -120.61437 | Vegetation | Rural | < 3 meters | Fire Agency | CAL FIRE | | | 12,000 | Conductor | Overhead | Yes | 7/19/15 | 9:44 | Contact From Object | | N.A. | Other | Electric Facility | Weather | lightning strike |
| 475 | PG&E | 07/19/15 | 19:36 | 38.65629 | -121.79353 | Vegetation | Urban | < 3 meters | Fire Agency | WOODLAND FIRE DEPT. | | BASE OF TRANSMISSION / DISTRIBUTION POLE = 1/P/S/O FUSES # 8973 | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 476 | PG&E | 07/20/15 | 15:15 | 37.76203 | -120.86537 | Vegetation | Urban | < 0.25 Acres | Fire Agency | OAKDALE CITY FIRE | | | 0 - 750 | Conductor | Overhead | No | | | Unknown | | N.A. | N.A. | Unknown | | |
| 477 | PG&E | 07/21/15 | 8:44 | 39.11813 | -123.20113 | Vegetation | Rural | < 0.25 Acres | Fire Agency | UKIAH FIRE | | 102178810 | 0 - 750 | Unknown | Overhead | No | | | Unknown | | N.A. | N.A. | Unknown | | |
| 478 | PG&E | 07/21/15 | 10:46 | 37.18055 | -121.06247 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | e/o dmc s/o cotterwood | 12,000 | Conductor | Overhead | Yes | 7/21/15 | 10:46 | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 479 | PG&E | 07/22/15 | 11:03 | 38.12063 | -122.24813 | Vegetation | Urban | < 3 meters | Fire Agency | VALLEJO FD | | 102308149 | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 480 | PG&E | 07/22/15 | 14:21 | 38.79354 | -120.71402 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | sl 3204 slope dr | 12,000 | Conductor | Overhead | Yes | 7/22/15 | 14:21 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 481 | PG&E | 07/23/15 | 13:14 | 36.23963 | -119.77574 | Vegetation | Rural | < 0.25 Acres | Fire Agency | KINGS COUNTY | | 103242492 | 12,000 | Conductor | Overhead | Yes | 7/23/15 | 13:14 | Contact From Object | | N.A. | Vehicle | Pole | Human Error | |
| 482 | PG&E | 07/23/15 | 20:04 | 38.00746 | -121.84819 | Vegetation | Rural | < 0.25 Acres | Unknown | | | Tower 006/081 | 60,000 | Unknown | Overhead | Yes | 7/23/15 | 20:04 | Unknown | | N.A. | N.A. | Unknown | | |
| 483 | PG&E | 07/24/15 | 4:10 | 38.45227 | -121.71819 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Dixon fire dept | | 101575623 | 12,000 | Conductor | Overhead | Yes | 7/24/15 | 4:10 | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 484 | PG&E | 07/24/15 | 14:30 | 36.69127 | -119.03117 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | | 46970 DUNLAP RD | 0 - 750 | Transformer | Overhead | Yes | 7/24/15 | 14:30 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | | |
| 485 | PG&E | 07/25/15 | 14:52 | 38.92645 | -121.29455 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | wise rd west of gladding lincoln | 12,000 | Conductor | Overhead | Yes | 7/25/15 | 14:52 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | | |
| 486 | PG&E | 07/25/15 | 19:34 | 39.78477 | -121.86082 | Vegetation | Urban | < 0.25 Acres | Fire Agency | CAL FIRE | | 3668 hicks lane, Chico | 12,000 | Conductor | Overhead | Yes | 7/25/15 | 19:34 | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 487 | PG&E | 07/26/15 | 12:25 | 39.15861 | -121.06344 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | 15499 ALLISON RANCH RD | 12,000 | Conductor | Overhead | Yes | 7/26/15 | 12:25 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 488 | PG&E | 07/27/15 | 9:41 | 37.65653 | -121.75705 | Vegetation | Rural | < 0.25 Acres | Fire Agency | LPFD | | 100926006 | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 489 | PG&E | 07/27/15 | 13:07 | 37.76730 | -121.41998 | Vegetation | Rural | < 0.25 Acres | Fire Agency | TRACY FIRE DEPT | | AT C258; S/S ARBOR W/ MACARTHUR | 0 - 750 | Other | Overhead | No | | | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | | |
| 490 | PG&E | 07/27/15 | 15:33 | 38.41629 | -122.71671 | Building | Urban | .26 - 9.99 Acres | Fire Agency | | | 2180 Corby Ave. Santa Rosa | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 491 | PG&E | 07/27/15 | 15:57 | 38.07114 | -121.47278 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Wheatland fire dept. | | 101334044 | 12,000 | Other | Overhead | Yes | 7/27/15 | 15:57 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | Booster | |
| 492 | PG&E | 07/28/15 | 12:15 | 40.90857 | -124.07159 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | 100973761 | 12,000 | Lightning Arrestor | Overhead | Yes | 7/28/15 | 12:15 | Equipment/ Facility Failure | | N.A. | N.A. | Unknown | | |
| 493 | PG&E | 07/28/15 | 12:19 | 37.76431 | -121.34425 | Vegetation | Rural | < 3 meters | Fire Agency | Tracy fire dept | | w berry ave on canal blvd | 12,000 | Conductor | Overhead | Yes | 7/28/15 | 12:19 | Contact From Object | | N.A. | Vehicle | Pole | Human Error | |
| 494 | PG&E | 07/28/15 | 12:32 | 37.94288 | -120.94398 | Vegetation | Rural | < 3 meters | Fire Agency | CAL FIRE | | Waverly Road and HWY 4, Farmington | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 495 | PG&E | 07/29/15 | 13:30 | 38.55494 | -122.83032 | Vegetation | Urban | < 3 meters | Unknown | | | 1031 Starr View Drive, Windsor | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | | N.A. | Other | Electric Facility | Human Error | hit by boom of bucket t |
| 496 | PG&E | 07/29/15 | 23:34 | 37.36622 | -121.84381 | Vegetation | Urban | < 3 meters | Fire Agency | SJFD | | IRO 751 FLEMING AVE IN FIELD NEAR DRY CREEK BED | 12,000 | Conductor | Overhead | Yes | 7/29/15 | 23:34 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 497 | PG&E | 07/30/15 | 14:26 | 38.34592 | -122.31054 | Vegetation | Urban | < 0.25 Acres | Unknown | unknown | | In ditch at base of pole. 12 by 60 | 0 - 750 | Unknown | Overhead | No | | | Unknown | | N.A. | N.A. | Unknown | | |
| 498 | PG&E | 07/30/15 | 14:55 | 38.44481 | -121.82692 | Building | Urban | Structure Only | Fire Agency | dixon fire dept | | 102309947 | 12,000 | Transformer | Overhead | Yes | 7/30/15 | 14:55 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | | |
| 499 | PG&E | 07/30/15 | 15:19 | 39.23214 | -121.05674 | Vegetation | Urban | .26 - 9.99 Acres | Fire Agency | GRASS VALLEY FIRE DEPT | | BEHIND 272 HUGHES RD. GRASS VALLEY | 12,000 | Conductor | Overhead | Yes | 7/30/15 | 15:19 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 500 | PG&E | 07/30/15 | 17:38 | 40.52027 | -122.23259 | Vegetation | Rural | < 0.25 Acres | Fire Agency | | | MTR 10061916 | 12,000 | Conductor | Overhead | Yes | 7/30/15 | 17:38 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 501 | PG&E | 07/30/15 | 17:56 | 37.90209 | -120.47395 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | | 101019808 | 17,000 | Conductor | Overhead | Yes | 7/30/15 | 17:56 | Contact From Object | | N.A. | Other | Electric Facility | Unknown | osprey nest |
| 502 | PG&E | 07/30/15 | 18:11 | 37.81024 | -120.12872 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | | | 17,000 | Conductor | Overhead | Yes | 7/30/15 | 19:11 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 503 | PG&E | 07/31/15 | 15:57 | 36.79744 | -119.81885 | Vegetation | Urban | < 3 meters | Fire Agency | fresno fire dept | | 100856564 | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 504 | PG&E | 07/31/15 | 19:38 | 35.39864 | -118.98988 | Vegetation | Urban | < 0.25 Acres | Fire Agency | CITY OF BAKERSFIELD | | 100184905 | 0 - 750 | Conductor | Overhead | No | | | Unknown | | N.A. | N.A. | Unknown | | |
| 505 | PG&E | 07/31/15 | 22:45 | 38.38045 | -120.56283 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CAL FIRE | | ACROSS FROM 1958 QUAIL LN WEST POINT | 12,000 | Conductor | Overhead | Yes | 7/31/15 | 22:45 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 506 | PG&E | 08/01/15 | 7:15 | 36.40289 | -121.90944 | Vegetation | Rural | < 0.25 Acres | Fire Agency | fire com | | 3spans loadside of 40283 | 12,000 | Conductor | Overhead | Yes | 8/1/15 | 7:15 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | | |
| 507 | PG&E | 08/01/15 | 14:30 | 34.95239 | -120.29522 | Vegetation | Rural | 10 - 99 Acres | Unknown | | | 101866639 | 12,000 | Conductor | Overhead | Yes | 8/1/15 | 14:30 | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 508 | PG&E | 08/02/15 | 8:08 | 37.53385 | -120.32769 | Vegetation | Rural | < 0.25 Acres | Unknown | | | Pole 013/002 | 70,000 | Conductor | Overhead | Yes | 8/2/15 | 8:08 | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 509 | PG&E | 08/02/15 | 13:48 | 37.87996 | -122.52679 | Vegetation | Urban | < 0.25 Acres | Fire Agency | mill valley FD | | 102276049 | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 510 | PG&E | 08/02/15 | 16:24 | 37.63172 | -120.15471 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | 101076992 | 21,000 | Conductor | Overhead | Yes | 8/2/15 | 16:24 | Unknown | | N.A. | N.A. | Unknown | | |
| 511 | PG&E | 08/03/15 | 0:07 | 40.50560 | -122.34702 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | COTTONWOOD FIRE DEPT | | 101503428 | 12,000 | Conductor | Overhead | Yes | 8/3/15 | 0:07 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 512 | PG&E | 08/03/15 | 17:53 | 39.39610 | -121.18939 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | CAL FIRE | | Pole 000/008 | 80,000 | Conductor | Overhead | Yes | 8/3/15 | 17:53 | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 513 | PG&E | 08/04/15 | 16:05 | 40.08216 | -121.15383 | Vegetation | Rural | < 0.25 Acres | Fire Agency | USFS | | 100441220 | 0 - 750 | Fuse | Overhead | Yes | 8/4/15 | 16:05 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | | |
| 514 | PG&E | 08/04/15 | 17:57 | 37.58791 | -120.22898 | Vegetation | Rural | < 0.25 Acres | Unknown | | | Str. 007/019 | 70,000 | Conductor | Overhead | Yes | 8/4/15 | 17:57 | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 515 | PG&E | 08/05/15 | 15:13 | 37.31997 | -120.50507 | Vegetation | Urban | < 0.25 Acres | Fire Agency | CAL FIRE | | 101162540 | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | | |
| 516 | PG&E | 08/06/15 | 12:10 | 38.22687 | -121.02613 | Vegetation | Rural | < 0.25 Acres | Fire Agency | city of ione fire dept | | 103194904 | 21,000 | Conductor | Overhead | Yes | 8/6/15 | 12:10 | Contact From Object | | N.A. | Animal | Electric Facility | Unknown | |
| 517 | PG&E | 08/06/15 | 16:18 | 39.27542 | -122.07580 | Vegetation | Rural | < 0.25 Acres | Unknown | | | 6 POLES E/LR 3036 | 12,000 | Conductor | Overhead | Yes | 8/6/15 | 16:18 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | | |
| 518 | PG&E | 08/07/15 | 6:24 | 37.50238 | -122.10573 | Vegetation | Rural | < 0.25 Acres | Unknown | | | | 12,000 | Conductor | Overhead | Yes | 8/7/15 | 6:24 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 519 | PG&E | 08/07/15 | 6:32 | 37.84005 | -122.18234 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | 100498058 | 12,000 | Conductor | Overhead | Yes | 8/7/15 | 6:32 | Contact From Object | | N.A. | Vegetation | Electric Facility | Unknown | |
| 520 | PG&E | 08/07/15 | 16:59 | 39.89175 | -122.16936 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | EVERY BODY | | 101503955 | 12,000 | Conductor | Overhead | Yes | 8/7/15 | 16:59 | Contact From Object | | N.A. | Vehicle | Pole | Human Error | |
| 521 | PG&E | 08/08/15 | 7:42 | | | | | | | | | | | | | | | | | | | | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|-----|--------------|----------|-------|----------|------------|--------------------|--------------------|-----------------|---------------|------------------------------|--|-----------------|-----------------|----------------------------------|----------|---------------------|---------|-------|-----------------------------|-----------------------------|---------------------|--------------------|---------------------|--------------------|
| 2 | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Suspected Initiating Event | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 583 | PG&E | 09/06/15 | 13:37 | 40.16925 | -122.25692 | Vegetation | Urban | < 3 meters | Fire Agency | Red Bluff fire dept | at switch 3571 | | 0 - 750 | Conductor | Overhead | Yes | 9/6/15 | 13:37 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 584 | PG&E | 09/06/15 | 19:27 | 34.61954 | -120.25339 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Santa Barbara County Fire | meter# 1008400678 | Verizon | 12,000 | Conductor | Overhead | Yes | 9/6/15 | 19:27 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 585 | PG&E | 09/06/15 | 19:40 | 37.51330 | -121.94693 | Vegetation | Urban | < 3 meters | Customer | | 100943889 | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 586 | PG&E | 09/07/15 | 0:05 | 37.69131 | -122.13884 | Vegetation | Urban | < 0.25 Acres | Fire Agency | SAN LEANDRO | | | 12,000 | Conductor | Overhead | Yes | 9/7/15 | 0:05 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 587 | PG&E | 09/08/15 | 8:19 | 37.41316 | -121.88199 | Vegetation | Urban | < 3 meters | Fire Agency | MILPITAS FD | 100561024 | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 588 | PG&E | 09/09/15 | 6:44 | 38.82685 | -123.01578 | Vegetation | Rural | < 3 meters | Fire Agency | CLOVERDALE FIRE | 102039036 | | 12,750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 589 | PG&E | 09/09/15 | 10:47 | 37.10405 | -121.8526 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 100520291 | | 12,000 | Conductor | Overhead | Yes | 9/9/15 | 10:47 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 590 | PG&E | 09/10/15 | 5:42 | 37.46093 | -121.84342 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | CAL FIRE | 100619786 | None | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 591 | PG&E | 09/10/15 | 16:24 | 38.50487 | -122.35346 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | CAL FIRE | 103159970 | Pacific Bell | 21,000 | Conductor | Overhead | Yes | 9/10/15 | 16:24 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 592 | PG&E | 09/10/15 | 18:39 | 40.75692 | -123.79577 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | CAL FIRE | Pole 096/004 | | 115,000 | Conductor | Overhead | Yes | 9/10/15 | 18:39 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 593 | PG&E | 09/11/15 | 6:38 | 37.52319 | -122.26541 | Other | Urban | Structure Only | Fire Agency | sc | | | 12,000 | Conductor | Overhead | Yes | 9/11/15 | 6:38 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 594 | PG&E | 09/11/15 | 8:15 | 38.10938 | -122.86999 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 102293992 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 9/11/15 | 8:15 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 595 | PG&E | 09/11/15 | 17:28 | 37.79722 | -121.27472 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | MANTECALATHROP FIRE DEPT | 102105463 | Verizon | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 596 | PG&E | 09/12/15 | 9:51 | 39.11644 | -121.06930 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | CAL FIRE | TOP OF AVALON PLACE, GRASS VALLEY TOWER NUMBER 19/152 40689729 | | 115,000 | Conductor | Overhead | Yes | 9/12/15 | 9:51 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 597 | PG&E | 09/12/15 | 11:09 | 38.60304 | -120.67409 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 101394596 | | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 598 | PG&E | 09/12/15 | 11:36 | 36.35574 | -119.04595 | Vegetation | Urban | < 3 meters | Fire Agency | Bakersfield FD | 100194468 | Pacific Bell | 12,000 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | Third-party caused |
| 599 | PG&E | 09/13/15 | 8:48 | 37.72455 | -121.32594 | Vegetation | Rural | < 3 meters | Fire Agency | TRACY FIRE DEPT | CRNR OF KASSON AND LORENZEN | | 12,000 | Conductor | Overhead | Yes | 9/13/15 | 8:48 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 600 | PG&E | 09/13/15 | 18:24 | 39.26731 | -121.88308 | Vegetation | Rural | < 0.25 Acres | Customer | | | None | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 601 | PG&E | 09/15/15 | 22:05 | 36.58739 | -119.56865 | Vegetation | Rural | < 0.25 Acres | Fire Agency | COUNTY FIRE | 100878350 | Pacific Bell | 0 - 750 | Conductor | Overhead | Yes | 9/15/15 | 22:05 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 602 | PG&E | 09/16/15 | 0:18 | 37.99140 | -121.66822 | Vegetation | Rural | < 3 meters | Fire Agency | EAST COUNTY FIRE | 100457468 | | 21,000 | Conductor | Overhead | Yes | 9/16/15 | 0:18 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 603 | PG&E | 09/18/15 | 16:23 | 37.86909 | -121.20633 | Vegetation | Rural | < 0.25 Acres | Fire Agency | FRENCH CAMP FIRE | IN CANAL AT 5027 FRENCH CAMP RD | | 12,000 | Conductor | Overhead | Yes | 9/18/15 | 16:23 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 604 | PG&E | 09/18/15 | 17:05 | 37.89920 | -120.45508 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | CAL FIRE | 101019893 | | 17,000 | Conductor | Overhead | Yes | 9/18/15 | 17:05 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 605 | PG&E | 09/19/15 | 9:51 | 38.47550 | -122.90691 | Vegetation | Rural | < 0.25 Acres | Fire Agency | FORESTVILLE | 103334444 | | 12,000 | Conductor | Overhead | Yes | 9/19/15 | 9:51 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 606 | PG&E | 09/20/15 | 18:53 | 39.86379 | -121.65991 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | | | 12,000 | Conductor | Overhead | Yes | 9/20/15 | 18:53 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 607 | PG&E | 09/21/15 | 4:06 | 38.65867 | -121.04035 | Vegetation | Urban | < 0.25 Acres | Fire Agency | CAL FIRE | 121381383 | | 21,000 | Conductor | Overhead | Yes | 9/21/15 | 4:06 | Wire-Wire Contact | N.A. | N.A. | Unknown | | |
| 608 | PG&E | 09/21/15 | 14:23 | 40.47863 | -123.77105 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | mile marker 29.1, e of hairpin turn | | 12,000 | Conductor | Overhead | Yes | 9/21/15 | 14:23 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 609 | PG&E | 09/21/15 | 16:33 | 38.24517 | -122.04115 | Vegetation | Urban | < 0.25 Acres | Fire Agency | FAIRFIELD FIRE DEPT | REAR OF 900 TAFT | | 12,000 | Conductor | Overhead | Yes | 9/21/15 | 16:33 | Contact From Object | N.A. | Balloons | Electric Facility | Unknown | |
| 610 | PG&E | 09/22/15 | 0:44 | 39.00780 | -122.89376 | Vegetation | Rural | < 0.25 Acres | Fire Agency | LAKEPORT FIRE | 102159765 | | 12,000 | Conductor | Overhead | Yes | 9/22/15 | 0:44 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 611 | PG&E | 09/22/15 | 15:55 | 39.12244 | -121.63922 | Vegetation | Urban | < 0.25 Acres | Fire Agency | YUBA CITY | 101300036 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 9/22/15 | 15:55 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 612 | PG&E | 09/22/15 | 20:07 | 38.47786 | -121.98948 | Vegetation | Rural | < 0.25 Acres | Fire Agency | WINTERS? | 101577611 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 9/22/15 | 20:07 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 613 | PG&E | 09/24/15 | 1:40 | 37.99362 | -122.33375 | Vegetation | Urban | < 0.25 Acres | Unknown | | 101426065 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 9/24/15 | 1:40 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 614 | PG&E | 09/24/15 | 3:58 | 39.92032 | -122.38591 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 103132877 | | 0 - 750 | Unknown | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | |
| 615 | PG&E | 09/24/15 | 4:30 | 38.67690 | -123.31398 | Vegetation | Rural | < 0.25 Acres | Unknown | | Str. 041/007 | | 60,000 | Conductor | Overhead | Yes | 9/24/15 | 4:30 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 616 | PG&E | 09/24/15 | 13:56 | 39.35078 | -121.24544 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 9692 Rices-Texas Hill rd. | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 9/24/15 | 13:56 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 617 | PG&E | 09/25/15 | 13:31 | 37.26108 | -120.79198 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | CAL FIRE | 2 POLES EAST OF MTR#1009626581 | | 12,000 | Conductor | Overhead | Yes | 9/25/15 | 13:31 | Vandalism/Theft | N.A. | N.A. | Unknown | gun-shot conductor | |
| 618 | PG&E | 09/25/15 | 17:28 | 38.71680 | -120.78394 | Vegetation | Rural | < 0.25 Acres | Fire Agency | at dorado F D | 101405928 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 9/25/15 | 17:28 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 619 | PG&E | 09/26/15 | 14:24 | 37.98601 | -121.23012 | Vegetation | Rural | < 0.25 Acres | Fire Agency | waterloo/morada | 102135315 | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 620 | PG&E | 09/28/15 | 4:42 | 38.78772 | -121.20832 | Vegetation | Urban | < 3 meters | Fire Agency | n/a | 100058887 | Pacific Bell | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 621 | PG&E | 09/28/15 | 9:42 | 37.96233 | -122.17651 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | CAL FIRE | 100458692 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 9/28/15 | 9:42 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 622 | PG&E | 09/28/15 | 18:10 | 38.13502 | -122.47704 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | CAL FIRE | 1 mile north of 37 on lakeville | | 12,000 | Conductor | Overhead | Yes | 9/28/15 | 18:10 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 623 | PG&E | 09/29/15 | 2:52 | 38.33700 | -121.86009 | Vegetation | Rural | 26 - 9.99 Acres | Fire Agency | VACAVILLE FD | FRY RD @ CLARK | | 21,000 | Conductor | Overhead | Yes | 9/29/15 | 2:52 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 624 | PG&E | 09/29/15 | 19:05 | 35.41976 | -118.94989 | Vegetation | Urban | < 0.25 Acres | Fire Agency | KERN COUNTY FIRE DEPARTMENT | 100193545 | | 12,000 | Conductor | Overhead | Yes | 9/29/15 | 19:05 | Vandalism/Theft | N.A. | N.A. | N.A. | Human Error | gun-shot conductor |
| 625 | PG&E | 09/29/15 | 19:46 | 37.97786 | -121.71949 | Vegetation | Urban | < 0.25 Acres | Fire Agency | OAKLEY FIRE DEPARTMENT | 100470700 | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 626 | PG&E | 09/30/15 | 16:41 | 37.35421 | -122.15916 | Vegetation | Rural | < 3 meters | Utility, PG&E | | 100520776 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 9/30/15 | 16:41 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 627 | PG&E | 09/30/15 | 17:25 | 38.57469 | -120.68203 | Vegetation | Rural | < 0.25 Acres | Fire Agency | el dorado county | 7901 shenandoah ln | | 21,000 | Conductor | Overhead | Yes | 9/30/15 | 17:25 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 628 | PG&E | 09/30/15 | 19:38 | 39.21883 | -122.24643 | Vegetation | Rural | < 0.25 Acres | Fire Agency | williams fire demp | 101641855 | None | 12,000 | Conductor | Overhead | Yes | 9/30/15 | 19:38 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 629 | PG&E | 10/01/15 | 2:43 | 39.66657 | -121.77421 | Vegetation | Rural | < 3 meters | Fire Agency | NOT KNOWN-GONE ON ARRIVAL | 103453398 | Pacific Bell | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 630 | PG&E | 10/01/15 | 11:28 | 37.50880 | -120.34464 | Vegetation | Rural | < 0.25 Acres | Unknown | | Pole 019/007 | | 70,000 | Conductor | Overhead | Yes | 10/1/15 | 11:28 | Contamination | N.A. | N.A. | N.A. | Weather | |
| 631 | PG&E | 10/01/15 | 13:13 | 37.62911 | -122.11534 | Vegetation | Rural | < 0.25 Acres | Fire Agency | HAYWARD | X ST FROM 25920 EDEN LANDING RD | | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 632 | PG&E | 10/02/15 | 19:16 | 36.94544 | -119.83020 | Vegetation | Rural | < 3 meters | Fire Agency | CAL FIRE | 101121403 | None | 21,000 | Conductor | Overhead | Yes | 10/2/15 | 19:16 | Contact From Object | N.A. | Other | Electric Facility | Human Error | Kite on line |
| 633 | PG&E | 10/03/15 | 7:27 | 39.06326 | -122.62369 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | 2323 new long valley rd | Pacific Bell | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 634 | PG&E | 10/03/15 | 21:11 | 39.73584 | -121.68554 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAL FIRE | honey run rd at cutouts 16015 | | 12,000 | Conductor | Overhead | Yes | 10/3/15 | 21:11 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 635 | PG&E | 10/03/15 | 2:25 | 39.11578 | -122.88785 | Vegetation | Rural | < 0.25 Acres | Fire Agency | north shore fire department. | 102164828 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 10/3/15 | 22:51 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 636 | PG&E | 10/04/15 | 11:01 | 38.79228 | -121.58929 | Vegetation | Urban | < 3 meters | Fire Agency | CAL FIRE | | | 12,000 | Conductor | Overhead | Yes | 10/4/15 | 1:03 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 637 | PG&E | 10/04/15 | 13:32 | 39.22780 | -121.73735 | Vegetation | Urban | < 3 meters | Fire Agency | CAL FIRE | in field at 6275 sandstone ln | | 12,000 | Conductor | Overhead | Yes | 10/4/15 | 1:32 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|-----|--------------|---------|-------|----------|------------|--------------------|--------------------|------------------|-------------------|-------------------------|-------------------------|-----------------|-----------------|----------------------------------|----------|---------------------|---------|-------|-----------------------------|-----------------------------|---------------------|--------------------|---------------------|--------------------|
| | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Suspected Initiating Event | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 699 | PG&E | 3/28/16 | 12:16 | 39.74275 | -121.82024 | Vegetation | URBAN | < 3 meters | Fire Agency | Chico FD | 100338028 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 3/28/16 | 12:16 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 700 | PG&E | 4/1/16 | 4:25 | 35.01641 | -118.89213 | Vegetation | RURAL | < 3 meters | Fire Agency | Kern County FD | 100194594 | None | 12,000 | Other | Overhead | Yes | 4/1/16 | 4:25 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 701 | PG&E | 4/2/16 | 3:48 | 35.37034 | -118.97521 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | KCFD | 100244829 | | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 702 | PG&E | 4/2/16 | 7:06 | 35.03071 | -120.52785 | Vegetation | RURAL | < 3 meters | Fire Agency | SAN LUIS CO FIRE | 101892796 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 4/2/16 | 7:06 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 703 | PG&E | 4/3/16 | 6:54 | 40.41751 | -122.21092 | Other | RURAL | Structure Only | Fire Agency | COTTONWOOD FIRE DEPT | 101488627 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 4/3/16 | 6:54 | Contact From Object | N.A. | Pole | Electric Facility | Human Error | |
| 704 | PG&E | 4/3/16 | 12:01 | 38.59294 | -121.12496 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101368191 | | 12,000 | Conductor | Overhead | Yes | 4/3/16 | 12:01 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 705 | PG&E | 4/4/16 | 0:08 | 37.75674 | -121.41933 | Vegetation | URBAN | < 3 meters | Fire Agency | Tracy FD | 102119421 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 4/4/16 | 0:08 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 706 | PG&E | 4/7/16 | 17:07 | 35.34199 | -119.01752 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Bakersfield FD | 100245953 | | 0 - 750 | Conductor | Overhead | Yes | 4/7/16 | 17:07 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 707 | PG&E | 4/8/16 | 13:14 | 39.04293 | -121.10020 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100086751 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 4/8/16 | 13:14 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 708 | PG&E | 4/13/16 | 19:28 | 40.49535 | -124.12191 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 103659313 | | 12,000 | Conductor | Overhead | Yes | 4/13/16 | 19:28 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 709 | PG&E | 4/14/16 | 14:16 | 36.15837 | -119.56502 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Kings County FD | 100766367 | | 12,000 | Other | Overhead | Yes | 4/14/16 | 14:16 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 710 | PG&E | 4/18/16 | 18:14 | 37.79381 | -120.98419 | Vegetation | URBAN | < 3 meters | Fire Agency | Escalon Fire | 102332958 | None | 0 - 750 | Other | Overhead | No | | | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 711 | PG&E | 4/20/16 | 16:39 | 39.40237 | -122.01414 | Vegetation | RURAL | < 3 meters | Unknown | Unknown | 101641171 | | 12,000 | Conductor | Overhead | Yes | 4/20/16 | 16:39 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 712 | PG&E | 4/21/16 | 3:20 | 38.19073 | -122.24723 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | American Canyon FD | 102295263 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 4/21/16 | 3:20 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 713 | PG&E | 4/21/16 | 9:25 | 39.29298 | -123.76501 | Vegetation | RURAL | < 3 meters | Customer | N.A. | 103312287 | | 0 - 750 | Other | Overhead | No | | | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 714 | PG&E | 4/22/16 | 17:10 | 37.88750 | -121.69848 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Brentwood FD | 100508567 | None | 0 - 750 | Transformer | Overhead | No | | | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 715 | PG&E | 4/22/16 | 22:02 | 35.34916 | -119.05375 | Vegetation | URBAN | < 3 meters | Customer | N.A. | 100156969 | Yes | 0 - 750 | Conductor | Overhead | Yes | 4/22/16 | 22:02 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 716 | PG&E | 4/23/16 | 18:32 | 36.49064 | -119.62925 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | city of selma | 100818205 | | 12,000 | Conductor | Overhead | Yes | 4/23/16 | 18:32 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 717 | PG&E | 4/24/16 | 11:10 | 34.70896 | -120.46117 | Vegetation | URBAN | .26 - 9.99 Acres | Fire Agency | Santa Barbara County FD | 101898989 | | 12,000 | Conductor | Overhead | Yes | 4/24/16 | 11:10 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 718 | PG&E | 4/25/16 | 12:34 | 36.47807 | -119.79041 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100875278 | | 12,000 | Conductor | Overhead | Yes | 4/25/16 | 12:34 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 719 | PG&E | 4/25/16 | 14:50 | 35.54445 | -119.08687 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Kern County FD | 100207184 | None | 12,000 | Conductor | Overhead | Yes | 4/25/16 | 14:50 | Other | N.A. | N.A. | N.A. | Human Error | |
| 720 | PG&E | 4/27/16 | 14:02 | 36.51612 | -119.25966 | Vegetation | RURAL | < 3 meters | Unknown | Unknown | 100755216 | Pacific Bell | 12,000 | Conductor | Overhead | Yes | 4/27/16 | 14:02 | Contact From Object | N.A. | Other | Electric Facility | Unknown | bird nest |
| 721 | PG&E | 4/30/16 | 17:59 | 38.31420 | -120.90148 | Vegetation | RURAL | < 3 meters | Fire Agency | Kern County FD | | | 12,000 | Conductor | Overhead | Yes | 4/30/16 | 17:59 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 722 | PG&E | 4/30/16 | 16:40 | 37.00665 | -120.63785 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Merced County FD | 103083239 | | 12,000 | Conductor | Overhead | Yes | 4/30/16 | 16:40 | Unknown | N.A. | N.A. | N.A. | Unknown | |
| 723 | PG&E | 4/30/16 | 13:41 | 38.25873 | -122.02549 | Vegetation | URBAN | < 3 meters | Fire Agency | Fairfield FD | 101580133 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 4/30/16 | 13:41 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 724 | PG&E | 5/2/16 | 10:05 | 37.91481 | -120.61782 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101283625 | CALAVERAS TELE | 17,000 | Conductor | Overhead | Yes | 5/2/16 | 10:05 | Contact From Object | N.A. | Other | Electric Facility | Unknown | bird dropped snake |
| 725 | PG&E | 5/9/16 | 17:05 | 35.98605 | -119.42935 | Vegetation | RURAL | < 3 meters | Unknown | Unknown | 100663426 | | 0 - 750 | Other | Overhead | No | | | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 726 | PG&E | 5/11/16 | 12:15 | 37.67808 | -122.47884 | Vegetation | URBAN | < 3 meters | Fire Agency | DALY CITY | 103565907 | | 0 - 750 | Conductor | Overhead | Yes | 5/11/16 | 12:15 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 727 | PG&E | 5/12/16 | 10:47 | 35.30243 | -120.71591 | Vegetation | RURAL | < 3 meters | Self Extinguished | N.A. | 101937429 | | 12,000 | Conductor | Overhead | Yes | 5/12/16 | 10:47 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 728 | PG&E | 5/12/16 | 13:35 | 40.45382 | -124.04774 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101006413 | | 12,000 | Conductor | Overhead | Yes | 5/12/16 | 13:35 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 729 | PG&E | 5/12/16 | 20:15 | 35.19217 | -120.45631 | Vegetation | RURAL | < 3 meters | Self Extinguished | N.A. | 101857280 | | 12,000 | Conductor | Overhead | Yes | 5/12/16 | 20:15 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 730 | PG&E | 5/14/16 | 15:06 | 37.96876 | -121.67042 | Vegetation | RURAL | < 0.25 Acres | Unknown | Unknown | 100472239 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 5/14/16 | 15:06 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 731 | PG&E | 5/14/16 | 22:06 | 39.16360 | -121.56126 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Marysville FD | 101312807 | | 12,000 | Switch | Overhead | Yes | 5/14/16 | 22:06 | Equipment/ Facility Failure | Switch | N.A. | N.A. | Unknown | |
| 732 | PG&E | 5/15/16 | 15:54 | 36.79479 | -119.39659 | Vegetation | RURAL | 100 - 299 Acres | Fire Agency | Cal Fire | 100729685 | None | 12,000 | Conductor | Overhead | Yes | 5/15/16 | 15:54 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 733 | PG&E | 5/16/16 | 8:59 | 37.92826 | -121.21642 | Vegetation | RURAL | < 3 meters | Fire Agency | Unknown | 101392115 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/16/16 | 8:59 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 734 | PG&E | 5/16/16 | 11:38 | 38.77343 | -121.46819 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 103332828 | | 12,000 | Conductor | Overhead | Yes | 5/16/16 | 11:34 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 735 | PG&E | 5/17/16 | 10:01 | 35.23788 | -118.96390 | Vegetation | RURAL | < 3 meters | Fire Agency | KCFD | 100135809 | | 0 - 750 | Transformer | Overhead | Yes | 5/17/16 | 10:01 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 736 | PG&E | 5/17/16 | 16:03 | 35.38565 | -119.00746 | Vegetation | URBAN | < 3 meters | Fire Agency | Bakersfield FD | 100246655 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 5/17/16 | 16:03 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 737 | PG&E | 5/18/16 | 18:24 | 39.73815 | -123.15874 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | | | 12,000 | Conductor | Overhead | Yes | 5/18/16 | 18:24 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 738 | PG&E | 5/18/16 | 15:45 | 35.55502 | -120.68032 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Atascadero FD | 101901773 | | 21,000 | Conductor | Overhead | Yes | 5/18/16 | 15:45 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | |
| 739 | PG&E | 5/18/16 | 20:04 | 40.47788 | -122.40312 | Vegetation | RURAL | < 3 meters | Fire Agency | County | 102307139 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/18/16 | 20:04 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 740 | PG&E | 5/19/16 | 1:42 | 34.66450 | -120.39999 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Santa Barbara County FD | 101916587 | VERIZON CALIFO | 12,000 | Conductor | Overhead | Yes | 5/19/16 | 1:42 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 741 | PG&E | 5/19/16 | 18:33 | 37.74005 | -120.80338 | Vegetation | RURAL | < 3 meters | Fire Agency | OAKDALE F.D. | 102342932 | | 17,000 | Conductor | Overhead | Yes | 5/19/16 | 18:33 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 742 | PG&E | 5/19/16 | 18:54 | 38.61683 | -123.58429 | Vegetation | RURAL | < 3 meters | Fire Agency | Gualala Firw | 102183917 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/19/16 | 18:54 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 743 | PG&E | 5/20/16 | 15:01 | 39.05589 | -122.45813 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 102198322 | | 12,000 | Conductor | Overhead | Yes | 5/20/16 | 15:01 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 744 | PG&E | 5/20/16 | 18:54 | 37.30348 | -121.83985 | Vegetation | URBAN | .26 - 9.99 Acres | Fire Agency | San Jose FD | 103457021 | | 21,000 | Unknown | Overhead | Yes | 5/20/16 | 18:54 | Unknown | N.A. | N.A. | N.A. | Unknown | |
| 745 | PG&E | 5/20/16 | 20:43 | 35.49647 | -120.68064 | Vegetation | URBAN | .26 - 9.99 Acres | Fire Agency | Atascadero FD | 101897769 | PACIFIC BELL | 0 - 750 | Unknown | Overhead | No | | | Other | N.A. | N.A. | N.A. | Unknown | |
| 746 | PG&E | 5/21/16 | 17:44 | 37.36898 | -120.67718 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101162897 | | 12,000 | Other | Overhead | No | | | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 747 | PG&E | 5/23/16 | 12:52 | 38.55290 | -121.62900 | Vegetation | RURAL | < 3 meters | Utility, PG&E | N.A. | 101593014 | | 12,000 | Conductor | Overhead | Yes | 5/23/16 | 12:52 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 748 | PG&E | 5/23/16 | 16:08 | 37.95368 | -121.65932 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Contra Costa County FD | 100472785 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/23/16 | 16:08 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 749 | PG&E | 5/24/16 | 12:36 | 38.08114 | -120.66798 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | 101278239 | | 12,000 | Conductor | Overhead | Yes | 5/24/16 | 12:36 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 750 | PG&E | 5/26/16 | 17:42 | 35.54674 | -119.09352 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | BCFD/KCFD | 100207252 | | 12,000 | Conductor | Overhead | Yes | 5/26/16 | 17:42 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | |
| 751 | PG&E | 5/27/16 | 3:01 | 38.09345 | -122.23443 | Vegetation | URBAN | < 3 meters | Fire Agency | Vallejo FD | 102217012 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/27/16 | 3:01 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 752 | PG&E | 5/28/16 | 15:28 | 36.72020 | -119.71336 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Fresno FD | 103297542 | | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 753 | PG&E | 5/29/16 | 14:19 | 40.57950 | -122.46840 | Vegetation | URBAN | < 3 meters | Fire Agency | Cal Fire | 103158596 | Yes | 12,000 | Conductor | Overhead | Yes | 5/29/16 | 14:19 | Contact From Object | N.A. | Vegetation | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|-----|--------------|---------|-------|----------|------------|--------------------|--------------------|------------------|-------------------|-----------------------------------|-------------------------|-----------------|-----------------|----------------------------------|----------|---------------------|---------|-------|-----------------------------|-----------------------------|---------------------|--------------------|---------------------|--------------------|
| | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Field Observations | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 815 | PG&E | 6/21/16 | 10.09 | 39.02942 | -121.29275 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100024816 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 816 | PG&E | 6/21/16 | 16.53 | 38.42328 | -122.54477 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | KENWOOD FIRE XST | 102036904 | Yes | 0 - 750 | Conductor | Overhead | Yes | 6/21/16 | 16.53 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 817 | PG&E | 6/21/16 | 18.01 | 39.28517 | -123.20530 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire/Redwood Valley FD | 102176908 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 6/21/16 | 18.01 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 818 | PG&E | 6/22/16 | 19.13 | 36.38751 | -119.83496 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Kings County FD | 100848643 | | 0 - 750 | Conductor | Overhead | Yes | 6/22/16 | 19.13 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 819 | PG&E | 6/23/16 | 10.10 | 36.72434 | -120.05834 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Fresno FD | 100637712 | | 0 - 750 | Conductor | Overhead | Yes | 6/23/16 | 10.10 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 820 | PG&E | 6/23/16 | 18.19 | 35.02119 | -120.35616 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | 101937184 | KERMAN TELEPH | 0 - 750 | Conductor | Overhead | Yes | 6/23/16 | 18.19 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 821 | PG&E | 6/23/16 | 21.33 | 38.12063 | -121.95450 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Suisun Fire Protection District. | 101559702 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 6/23/16 | 21.33 | Equipment/ Facility Failure | Conductor | N.A. | Animal | Unknown | |
| 822 | PG&E | 6/24/16 | 3.07 | 38.71917 | -121.05460 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire/EDH FIRE DEPT | 101378553 | | 21,000 | Conductor | Overhead | Yes | 6/24/16 | 3.07 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 823 | PG&E | 6/24/16 | 14.38 | 40.22003 | -122.28299 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101526647 | PACIFIC BELL | 0 - 750 | Unknown | Overhead | Yes | 6/24/16 | 14.38 | Unknown | N.A. | N.A. | N.A. | Unknown | |
| 824 | PG&E | 6/25/16 | 17.07 | 39.76026 | -121.61876 | Vegetation | URBAN | < 3 meters | Fire Agency | CAL FIRE/ PARADISE | 100327279 | | 12,000 | Conductor | Overhead | Yes | 6/25/16 | 17.07 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 825 | PG&E | 6/26/16 | 16.38 | 39.50417 | -121.44753 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100375810 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 6/26/16 | 16.38 | Wire-Wire Contact | N.A. | N.A. | N.A. | Unknown | |
| 826 | PG&E | 6/26/16 | 16.50 | 35.67721 | -120.68396 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | County | 101869974 | None | 0 - 750 | Conductor | Overhead | No | | | Vandalism/Theft | N.A. | N.A. | N.A. | Human Error | gunshot |
| 827 | PG&E | 6/26/16 | 17.59 | 38.80870 | -121.51591 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | PLEASANT GROVE FD - SUTTER COUNTY | 101340542 | | 12,000 | Conductor | Overhead | Yes | 6/26/16 | 17.59 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 828 | PG&E | 6/26/16 | 11.06 | 40.48320 | -122.04660 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101483777 | FRONTIER | 12,000 | Conductor | Overhead | Yes | 6/26/16 | 11.06 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 829 | PG&E | 6/27/16 | 11.12 | 36.90888 | -119.52242 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100725035 | None | 12,000 | Lightning Arrestor | Overhead | Yes | 6/27/16 | 11.12 | Equipment/ Facility Failure | Lightning Arrestor | N.A. | N.A. | Unknown | |
| 830 | PG&E | 6/28/16 | 11.40 | 37.28978 | -121.97660 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Unknown | 100593923 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 6/28/16 | 11.40 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 831 | PG&E | 6/28/16 | 13.36 | 38.08613 | -122.23043 | Building | URBAN | Structure Only | Fire Agency | wall fire | 102278744 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 6/28/16 | 13.36 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 832 | PG&E | 6/28/16 | 9.11 | 37.10045 | -120.22491 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Chowchilla FD | 103810794 | None | 12,000 | Conductor | Overhead | Yes | 6/28/16 | 9.11 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | third-party caused |
| 833 | PG&E | 6/29/16 | 12.55 | 36.50044 | -121.43470 | Vegetation | URBAN | < 0.25 Acres | Customer | N.A. | 101754504 | | 0 - 750 | Other | Overhead | No | | | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 834 | PG&E | 6/30/16 | 0.03 | 39.81570 | -121.59940 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | | | 12,000 | Conductor | Overhead | Yes | 6/30/16 | 0:03 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 835 | PG&E | 6/30/16 | 17.14 | 40.03530 | -122.56939 | Vegetation | RURAL | 300 - 999 Acres | Fire Agency | Cal Fire | 101528146 | | 12,000 | Conductor | Overhead | Yes | 6/30/16 | 17:14 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 836 | PG&E | 6/30/16 | 14.20 | 37.99268 | -120.39662 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Cal Fire | 102327111 | PACIFIC BELL | 17,000 | Conductor | Overhead | Yes | 6/30/16 | 14:20 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 837 | PG&E | 7/1/16 | 22.03 | 37.92729 | -122.31814 | Vegetation | URBAN | .26 - 9.99 Acres | Fire Agency | CITY OF RICHMOND | 101444612 | PACIFIC BELL | 4,000 | Conductor | Overhead | Yes | 7/1/16 | 22:03 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 838 | PG&E | 7/2/16 | 4.05 | 37.78048 | -121.49741 | Vegetation | RURAL | < 3 meters | Utility, PG&E | N.A. | 102094598 | | 12,000 | Conductor | Overhead | Yes | 7/2/16 | 4:05 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 839 | PG&E | 7/3/16 | 15.00 | 38.03483 | -120.38068 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | 101050507 | | 17,000 | Conductor | Overhead | Yes | 7/3/16 | 15:00 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 840 | PG&E | 7/4/16 | 7.43 | 38.76231 | -121.21425 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | South Placer FD | 103810320 | | 12,000 | Conductor | Overhead | Yes | 7/4/16 | 7:43 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 841 | PG&E | 7/5/16 | 8.35 | 36.23900 | -120.30154 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 100743822 | | 12,000 | Conductor | Overhead | Yes | 7/5/16 | 8:35 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 842 | PG&E | 7/5/16 | 10.36 | 36.28269 | -120.26173 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Fresno County FD | 100747232 | | 0 - 750 | Conductor | Overhead | Yes | 7/5/16 | 10:36 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 843 | PG&E | 7/7/16 | 10.56 | 39.29658 | -121.82628 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | LIVE OAK | 101315522 | | 12,000 | Fuse | Overhead | Yes | 7/7/16 | 10:56 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | |
| 844 | PG&E | 7/8/16 | 10.49 | 38.33731 | -122.12112 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 102291118 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 7/8/16 | 10:49 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 845 | PG&E | 7/8/16 | 15.13 | 33.61428 | -117.11102 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Unknown | 103070565 | None | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 846 | PG&E | 7/9/16 | 10.05 | 35.13105 | -120.60687 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Unknown | 101924844 | | 12,000 | Conductor | Overhead | Yes | 7/9/16 | 10:05 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 847 | PG&E | 7/9/16 | 14.57 | 38.50353 | -121.78264 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Dixon FD | 101599862 | None | 0 - 750 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 848 | PG&E | 7/9/16 | 15.42 | 38.89278 | -121.97476 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | DUGGAGAN FIRE | 101602162 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 7/9/16 | 15:42 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 849 | PG&E | 7/9/16 | 19.22 | 37.31108 | -121.83127 | Vegetation | URBAN | < 3 meters | Fire Agency | San Jose FD | 101592826 | PACIFIC BELL | 0 - 750 | Unknown | Overhead | Yes | 7/9/16 | 19:22 | Unknown | N.A. | N.A. | N.A. | Unknown | |
| 850 | PG&E | 7/12/16 | 18.18 | 35.34710 | -120.38130 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101327195 | | 21,000 | Conductor | Overhead | Yes | 7/12/16 | 18:18 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 851 | PG&E | 7/13/16 | 10.20 | 37.32768 | -122.07194 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire/scfd | 103510668 | | 115,000 | Conductor | Overhead | Yes | 7/13/16 | 10:20 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 852 | PG&E | 7/14/16 | 13.44 | 35.38333 | -118.92324 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Kern County FD | 100119861 | | 0 - 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 853 | PG&E | 7/15/16 | 5.19 | 35.18390 | -120.50180 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | 101846594 | | 12,000 | Conductor | Overhead | Yes | 7/15/16 | 5:19 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 854 | PG&E | 7/15/16 | 14.09 | 38.69651 | -120.85983 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101412774 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 7/15/16 | 14:09 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | third-party caused |
| 855 | PG&E | 7/15/16 | 14.26 | 38.13658 | -122.70919 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | NOVATO FIRE AND OTHERS | 102013570 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 7/15/16 | 14:26 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 856 | PG&E | 7/15/16 | 17.09 | 35.35853 | -119.04094 | Vegetation | URBAN | < 3 meters | Fire Agency | CITY | 100194332 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 7/15/16 | 17:09 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 857 | PG&E | 7/16/16 | 0.58 | 36.43790 | -121.91983 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101669758 | | 12,000 | Other | Overhead | Yes | 7/16/16 | 0:58 | Equipment/ Facility Failure | Voltage Regulator | N.A. | N.A. | Unknown | |
| 858 | PG&E | 7/16/16 | 8.19 | 37.48278 | -119.86599 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101079104 | None | 0 - 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 859 | PG&E | 7/16/16 | 20.26 | 38.49443 | -122.49443 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Cal Fire | 102265740 | | 12,000 | Conductor | Overhead | Yes | 7/16/16 | 20:26 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 860 | PG&E | 7/18/16 | 7.39 | 36.75720 | -119.78072 | Vegetation | URBAN | < 3 meters | Self Extinguished | N.A. | 100889086 | PACIFIC BELL | 0 - 750 | Capacitor Bank | Overhead | Yes | 7/18/16 | 7:39 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 861 | PG&E | 7/18/16 | 9.11 | 36.99768 | -119.98296 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | 101017131 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 7/18/16 | 9:11 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 862 | PG&E | 7/18/16 | 15.56 | 37.32207 | -121.80553 | Vegetation | URBAN | .26 - 9.99 Acres | Fire Agency | San Jose FD | 100579940 | | 21,000 | Conductor | Overhead | Yes | 7/18/16 | 15:56 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 863 | PG&E | 7/18/16 | 17.14 | 36.91198 | -121.79134 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101699685 | PACIFIC BELL | 21,000 | Switch | Overhead | Yes | 7/18/16 | 17:14 | Equipment/ Facility Failure | Sectionalizer | N.A. | N.A. | Unknown | |
| 864 | PG&E | 7/19/16 | 1.53 | 38.07568 | -122.53964 | Vegetation | RURAL | < 3 meters | Fire Agency | NOVATO FIRE DEPT | 102305231 | | 12,000 | Other | Overhead | Yes | 7/19/16 | 1:53 | Equipment/ Facility Failure | Recloser | N.A. | N.A. | Unknown | |
| 865 | PG&E | 7/19/16 | 14.41 | 38.25346 | -122.06278 | Vegetation | URBAN | < 3 meters | Fire Agency | Fairfield FD | 101557178 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 7/19/16 | 14:41 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 866 | PG&E | 7/20/16 | 6.25 | 34.89329 | -120.35134 | Vegetation | RURAL | < 3 meters | Fire Agency | Sanita Barbara County FD | 101861585 | | 12,000 | Conductor | Overhead | Yes | 7/20/16 | 6:25 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 867 | PG&E | 7/20/16 | 19.15 | 37.77121 | -121.81041 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100898986 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 7/20/16 | 19:15 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 868 | PG&E | 7/21/16 | 13.10 | 39.49849 | -121.68858 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100418773 | | 12,000 | Conductor | Overhead | Yes | 7/21/16 | 13:10 | Contact From Object | N.A. | Vehicle | Pole | Human Error</ | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|-----|--------------|---------|-------|----------|------------|--------------------|--------------------|------------------|-------------------|--------------------------------|-------------------------|-----------------|-----------------|----------------------------------|----------|---------------------|---------|-------|-----------------------------|-----------------------------|---------------------|--------------------|---------------------|--------------------|
| | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Field Observations | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 931 | PG&E | 8/16/16 | 13:18 | 40.34169 | -123.88029 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | miranda/fruitland vol. calfire | 100990019 | None | 12,000 | Conductor | Overhead | Yes | 8/16/16 | 13:18 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 932 | PG&E | 8/16/16 | 22:17 | 36.78699 | -119.69569 | Vegetation | URBAN | < 3 meters | Fire Agency | GLOVIS FIRE DEPT | 100887618 | | 12,000 | Conductor | Overhead | Yes | 8/16/16 | 22:17 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 933 | PG&E | 8/17/16 | 9:41 | 35.37087 | -118.96842 | Building | URBAN | Structure Only | Fire Agency | Kern County FD | 100162417 | | 21,000 | Transformer | Overhead | Yes | 8/17/16 | 9:41 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 934 | PG&E | 8/17/16 | 12:23 | 41.24946 | -123.76707 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100331591 | | 12,000 | Conductor | Overhead | Yes | 8/17/16 | 12:23 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 935 | PG&E | 8/17/16 | 14:02 | 39.63610 | -121.74794 | Vegetation | RURAL | < 3 meters | Customer | N.A. | 100437069 | | 60,000 | Conductor | Overhead | Yes | 8/17/16 | 14:02 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 936 | PG&E | 8/17/16 | 18:37 | 37.30779 | -119.65105 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101029302 | | 21,000 | Conductor | Overhead | Yes | 8/17/16 | 18:37 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 937 | PG&E | 8/18/16 | 15:22 | 36.61874 | -119.44391 | Vegetation | RURAL | < 3 meters | Self Extinguished | N.A. | 100828791 | VERIZON CALIFO | 0 – 750 | Conductor | Overhead | Yes | 8/18/16 | 15:22 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 938 | PG&E | 8/18/16 | 18:12 | 37.59560 | -122.08548 | Vegetation | URBAN | < 3 meters | Fire Agency | union city fd | 100935109 | PACIFIC BELL | 0 – 750 | Fuse | Overhead | No | | | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | |
| 939 | PG&E | 8/18/16 | 18:36 | 36.97014 | -121.54598 | Vegetation | RURAL | < 3 meters | Fire Agency | Santa Clara county fire | 103553473 | | 0 – 750 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 940 | PG&E | 8/19/16 | 16:23 | 39.22351 | -123.75500 | Vegetation | RURAL | < 3 meters | Fire Agency | Albion-Little River FD | 102206661 | | 12,000 | Conductor | Overhead | Yes | 8/19/16 | 16:23 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 941 | PG&E | 8/20/16 | 18:51 | 36.45801 | -119.34722 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Merced County FD | 100729153 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 8/20/16 | 18:51 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 942 | PG&E | 8/21/16 | 13:02 | 38.44445 | -122.24955 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 102291451 | | 12,000 | Conductor | Overhead | Yes | 8/21/16 | 13:02 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 943 | PG&E | 8/22/16 | 16:10 | 37.96656 | -120.23950 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Toulumne City FD | 101043683 | | 17,000 | Conductor | Overhead | Yes | 8/22/16 | 16:10 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 944 | PG&E | 8/23/16 | 16:03 | 38.87411 | -119.68648 | Vegetation | RURAL | < 3 meters | Customer | N.A. | 100731257 | None | 0 – 750 | Conductor | Overhead | Yes | 8/23/16 | 16:03 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 945 | PG&E | 8/24/16 | 12:11 | 36.46335 | -121.71202 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101750810 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 8/24/16 | 12:11 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 946 | PG&E | 8/24/16 | 14:18 | 36.84522 | -119.87926 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Fresno FD | 103271500 | | 21,000 | Conductor | Overhead | Yes | 8/24/16 | 14:19 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 947 | PG&E | 8/25/16 | 12:04 | 36.97263 | -119.38162 | Vegetation | RURAL | < 3 meters | Utility: PG&E | N.A. | 100651318 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 948 | PG&E | 8/25/16 | 11:31 | 37.37341 | -122.08696 | Vegetation | URBAN | < 3 meters | Self Extinguished | N.A. | 100516445 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 8/25/16 | 11:31 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 949 | PG&E | 8/27/16 | 5:37 | 36.04388 | -120.11166 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Kings County FD | 103246130 | | 70,000 | Conductor | Overhead | Yes | 8/27/16 | 5:37 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 950 | PG&E | 8/27/16 | 19:33 | 36.96458 | -122.05289 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | SC FIRE DEPT & CDF | 101677596 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 8/27/16 | 19:33 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 951 | PG&E | 8/28/16 | 16:49 | 36.56186 | -119.71860 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | 100683911 | | 12,000 | Conductor | Overhead | Yes | 8/28/16 | 16:49 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 952 | PG&E | 8/29/16 | 16:25 | 38.26928 | -121.60294 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | SAC FIRE | 101583637 | FRONTIER | 21,000 | Conductor | Overhead | Yes | 8/29/16 | 16:25 | Contact From Object | N.A. | Vehicle | Electric Facility | Human Error | |
| 953 | PG&E | 8/30/16 | 16:01 | 36.59413 | -121.92120 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Unknown | 101734977 | | 21,000 | Conductor | Overhead | Yes | 8/30/16 | 16:01 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 954 | PG&E | 8/30/16 | 16:14 | 38.05755 | -122.16590 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Benicia FD | 102264159 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 8/30/16 | 16:14 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | third-party caused |
| 955 | PG&E | 8/30/16 | 19:27 | 39.32580 | -122.12765 | Vegetation | RURAL | < 0.25 Acres | Unknown | Unknown | 103165385 | Yes | 12,000 | Conductor | Overhead | Yes | 8/30/16 | 19:27 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 956 | PG&E | 8/31/16 | 11:17 | 37.37206 | -120.45039 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Merced County FD | 101147802 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 8/31/16 | 11:17 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 957 | PG&E | 8/31/16 | 14:52 | 35.19180 | -120.46971 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101942860 | | 12,000 | Conductor | Overhead | Yes | 8/31/16 | 14:52 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 958 | PG&E | 8/31/16 | 19:43 | 38.15100 | -121.68037 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | ISLETON | 101665829 | FRONTIER | 21,000 | Conductor | Overhead | Yes | 8/31/16 | 19:43 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 959 | PG&E | 9/1/16 | 9:30 | 37.28144 | -121.86030 | Vegetation | URBAN | < 3 meters | Customer | N.A. | 100617565 | None | 21,000 | Conductor | Overhead | Yes | 9/1/16 | 9:30 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 960 | PG&E | 9/1/16 | 13:08 | 38.46327 | -122.81616 | Vegetation | RURAL | < 3 meters | Fire Agency | WINDSOR AND SANTA ROSA FIRE | 101956270 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/1/16 | 13:08 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 961 | PG&E | 9/2/16 | 12:42 | 38.38680 | -122.75553 | Vegetation | RURAL | < 3 meters | Fire Agency | Santa Rosa FD | 101969369 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 9/2/16 | 12:42 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 962 | PG&E | 9/2/16 | 13:50 | 37.66811 | -121.76805 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | LPFD | 100954399 | | 21,000 | Conductor | Overhead | Yes | 9/2/16 | 13:50 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | |
| 963 | PG&E | 9/3/16 | 20:12 | 39.32230 | -121.98490 | Vegetation | RURAL | < 3 meters | Unknown | Unknown | 101614478 | | 12,000 | Conductor | Overhead | Yes | 9/3/16 | 20:12 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 964 | PG&E | 9/3/16 | 20:58 | 38.80805 | -119.62789 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Unknown | 103269240 | | 12,000 | Conductor | Overhead | Yes | 9/3/16 | 20:58 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 965 | PG&E | 9/5/16 | 8:26 | 39.52329 | -122.14519 | Vegetation | URBAN | < 0.25 Acres | Unknown | Unknown | 100439321 | | 21,000 | Conductor | Overhead | Yes | 9/5/16 | 8:26 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 966 | PG&E | 9/7/16 | 97:06 | 37.95068 | -122.54447 | Vegetation | URBAN | < 3 meters | Fire Agency | San Rafael FD | 102249944 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 9/7/16 | 9:07 | Equipment/ Facility Failure | N.A. | N.A. | Unknown | | |
| 967 | PG&E | 9/7/16 | 9:56 | 39.55281 | -121.64163 | Vegetation | URBAN | .26 - 9.99 Acres | Unknown | Unknown | 103653028 | | 60,000 | Conductor | Overhead | Yes | 9/7/16 | 9:56 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 968 | PG&E | 9/8/16 | 14:39 | 38.00133 | -122.32902 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | PINOLE FIRE DEPT | 101426911 | | 12,000 | Conductor | Overhead | Yes | 9/8/16 | 14:39 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 969 | PG&E | 9/8/16 | 22:04 | 37.29175 | -121.87109 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | San Jose FD | 100598024 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 9/8/16 | 22:04 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 970 | PG&E | 9/9/16 | 10:57 | 36.85174 | -119.62254 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Fresno County FD | 100746408 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/9/16 | 10:57 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 971 | PG&E | 9/9/16 | 13:22 | 37.28367 | -120.47405 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Cal Fire | 101018780 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 9/9/16 | 13:22 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 972 | PG&E | 9/9/16 | 15:25 | 38.92020 | -121.08588 | Vegetation | URBAN | < 0.25 Acres | Fire Agency | Cal Fire | 100036304 | PACIFIC BELL | 12,000 | Capacitor Bank | Overhead | Yes | 9/9/16 | 15:25 | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 973 | PG&E | 9/10/16 | 2:09 | 37.18617 | -120.67754 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Merced County FD | 101072400 | | 12,000 | Conductor | Overhead | Yes | 9/10/16 | 2:09 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 974 | PG&E | 9/11/16 | 21:24 | 38.95261 | -119.72629 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Unknown | 100652942 | | 21,000 | Unknown | Overhead | Yes | 9/11/16 | 21:24 | Unknown | N.A. | N.A. | N.A. | Unknown | |
| 975 | PG&E | 9/12/16 | 4:24 | 36.39990 | -121.92021 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire Hwy 1 Carmel Hill | 101669814 | | 12,000 | Conductor | Overhead | Yes | 9/12/16 | 4:24 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 976 | PG&E | 9/12/16 | 12:38 | 38.78323 | -120.60080 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101421708 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 9/12/16 | 12:38 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 977 | PG&E | 9/12/16 | 18:47 | 36.53030 | -119.30560 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | CUTLER FIRE | 100807630 | None | 12,000 | Conductor | Overhead | Yes | 9/12/16 | 18:47 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 978 | PG&E | 9/12/16 | 20:42 | 37.35500 | -121.93550 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Santa Clara county fire | 100608192 | | 12,000 | Conductor | Overhead | Yes | 9/12/16 | 20:42 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 979 | PG&E | 9/12/16 | 15:08 | 39.52556 | -123.76550 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Cal Fire | 102185070 | | 12,000 | Conductor | Overhead | Yes | 9/12/16 | 15:08 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 980 | PG&E | 9/13/16 | 10:26 | 39.19131 | -121.18186 | Vegetation | RURAL | < 3 meters | Fire Agency | Cal Fire | 100082849 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 9/13/16 | 10:26 | Unknown | N.A. | N.A. | N.A. | Unknown | |
| 981 | PG&E | 9/13/16 | 10:45 | 40.29579 | -122.13182 | Vegetation | RURAL | 300 - 999 Acres | Fire Agency | Cal Fire | 103702175 | | 60,000 | Conductor | Overhead | Yes | 9/13/16 | 10:45 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 982 | PG&E | 9/14/16 | 21:16 | 37.34475 | -121.07646 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | STANISLUAS COUNTY | 101228545 | None | 12,000 | Conductor | Overhead | Yes | 9/14/16 | 21:16 | Vandalism/Theft | N.A. | N.A. | N.A. | Human Error | gunshot |
| 983 | PG&E | 9/14/16 | 23:25 | 39.47962 | -121.85754 | Vegetation | RURAL | < 0.25 Acres | Unknown | Unknown | 101618097 | | 12,000 | Conductor | Overhead | Yes | 9/14/16 | 23:25 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 984 | PG&E | 9/15/16 | 18:56 | 37.11024 | -121.95592 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 100520198 | VERIZON CALIFO | 12,000 | Conductor | Overhead | Yes | 9/15/16 | 18:5 | | | | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|------|--------------|----------|-------|----------|------------|--------------------|--------------------|------------------|-------------------|--|-------------------------|-----------------|-----------------|----------------------------------|------------|---------------------|----------|-------|-----------------------------|-----------------------------|---------------------|--------------------|---------------------|--------------------|
| 2 | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Suspected Initiating Event | Equipment /Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 1047 | PG&E | 10/31/16 | 17.04 | 36.66385 | -119.74626 | Vegetation | RURAL | .26 - 9.99 Acres | Fire Agency | Fresno County FD | 100808306 | | 12,000 | Conductor | Overhead | Yes | 10/31/16 | 17.04 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1048 | PG&E | 11/9/16 | 9.06 | 37.45316 | -119.64132 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | US FOREST SERVICE | 101017062 | | 12,000 | Conductor | Overhead | Yes | 11/9/16 | 9.06 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | third-party caused |
| 1049 | PG&E | 11/14/16 | 3.25 | 35.43969 | -120.89022 | Vegetation | URBAN | < 3 meters | Fire Agency | Cayucos fire | 101853338 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 11/14/16 | 3.25 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 1050 | PG&E | 11/14/16 | 13.15 | 35.45772 | -120.46186 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | Cal Fire | 101895511 | | 21,000 | Conductor | Overhead | Yes | 11/14/16 | 13.15 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 1051 | PG&E | 11/15/16 | 17.27 | 39.72747 | -121.65571 | Vegetation | RURAL | < 0.25 Acres | Fire Agency | CAL FIRE/BUTTE COUNTY FIRE DEPT. | 100327525 | | 12,000 | Conductor | Overhead | Yes | 11/15/16 | 17.27 | Contact From Object | N.A. | Vehicle | Pole | Human Error | |
| 1052 | PG&E | 11/20/16 | 11.04 | 38.63862 | -118.78298 | Vegetation | RURAL | < 3 Meters | Fire Agency | Cal Fire | 102200173 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 11/20/16 | 11.04 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1053 | PG&E | 11/26/16 | 12.10 | 35.32208 | -118.78080 | Vegetation | RURAL | < 0.25 Acres | Utility: PG&E | N.A. | 102300399 | | 12,000 | Conductor | Overhead | Yes | 11/26/16 | 12.10 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1054 | PG&E | 01/01/17 | 15.57 | 38.66287 | -121.74803 | Vegetation | Urban | < 3 Meters | Fire Agency | Woodland fire dept 530-666-8920 | 101589774 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 1/1/17 | 15.57 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1055 | PG&E | 01/10/17 | 15.55 | 38.75380 | -121.15641 | Building | Urban | Structure Only | Unknown | N.A. | 100065079 | Unknown | 12,000 | Conductor | Overhead | Yes | 1/10/17 | 15.55 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1056 | PG&E | 01/18/17 | 15.34 | 37.38388 | -121.80884 | Building | Urban | Structure Only | Unknown | N.A. | 100564835 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 1/18/17 | 15.34 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1057 | PG&E | 01/29/17 | 09.45 | 38.36159 | -121.95091 | Building | Urban | Structure Only | Fire Agency | Unknown | T8550 | Unknown | 12,000 | Transformer | Subsurface | Yes | 1/29/17 | 09.45 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1058 | PG&E | 02/03/17 | 10.00 | 37.56153 | -122.02772 | Vegetation | Urban | < 3 Meters | Fire Agency | jeff | 100938466 | Unknown | 12,000 | Conductor | Overhead | Yes | 2/3/17 | 10.00 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1059 | PG&E | 02/07/17 | 04.50 | 38.43314 | -122.71902 | Building | Urban | Structure Only | Fire Agency | Santa Rosa Fire Dept | 102014637 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 2/7/17 | 04.50 | Other | N.A. | N.A. | Unknown | | |
| 1060 | PG&E | 03/16/17 | 12.43 | 38.27175 | -122.01971 | Other | Urban | < 0.25 Acres | Fire Agency | Unknown | 101561532 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 3/16/17 | 12.43 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1061 | PG&E | 03/17/17 | 09.37 | 38.11532 | -121.42215 | Other | Rural | Structure Only | Fire Agency | 911 | 102044732 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 3/17/17 | 09.37 | Contact From Object | N.A. | Vehicle | Electric Facility | Human Error | third-party caused |
| 1062 | PG&E | 03/19/17 | 17.06 | 39.76209 | -121.85247 | Vegetation | Urban | < 3 Meters | Fire Agency | CHICO FIRE DEPT 911 | 100443177 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 3/19/17 | 17.06 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1063 | PG&E | 03/23/17 | 07.04 | 37.36975 | -121.85218 | Other | Urban | < 3 Meters | Fire Agency | SJFD disp 408-277-8950 Incident# F170829041 | 103485262 | Unknown | 12,000 | Transformer | Subsurface | Yes | 3/23/17 | 07.04 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1064 | PG&E | 03/28/17 | 12.15 | 34.88092 | -120.41992 | Vegetation | Urban | < 3 Meters | Fire Agency | Unknown | 103397961 | YES | 12,000 | Conductor | Overhead | Yes | 3/28/17 | 12.15 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1065 | PG&E | 04/01/17 | 14.54 | 37.18823 | -120.95764 | Vegetation | Rural | < 0.25 Acres | Fire Agency | engine 74 mrced fire agency | 102318665 | Unknown | 12,000 | Conductor | Overhead | Yes | 4/1/17 | 14.54 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1066 | PG&E | 04/04/17 | 13.29 | 35.68851 | -120.76533 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 101945026 | None | 12,000 | Conductor | Overhead | Yes | 4/4/17 | 13.29 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1067 | PG&E | 04/04/17 | 14.54 | 37.29584 | -121.93295 | Vegetation | Urban | < 3 Meters | Customer | N.A. | 100591136 | None | 12,000 | Conductor | Overhead | Yes | 4/4/17 | 14.54 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1068 | PG&E | 04/10/17 | 16.35 | 35.61751 | -119.74296 | Vegetation | Rural | < 3 Meters | Self Extinguished | N.A. | 100128630 | Unknown | 21,000 | Conductor | Overhead | No | | | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1069 | PG&E | 04/13/17 | 14.21 | 37.79671 | -121.25210 | Other | Urban | Structure Only | Fire Agency | MANTECA CITY | 102104500 | VERIZON CALIFO | 17,000 | Conductor | Overhead | Yes | 4/13/17 | 14.21 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1070 | PG&E | 04/16/17 | 15.14 | 35.58053 | -119.14227 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 103833904 | Unknown | 12,000 | Conductor | Overhead | Yes | 4/16/17 | 15.14 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 1071 | PG&E | 04/20/17 | 20.14 | 37.37407 | -120.71688 | Vegetation | Urban | < 3 Meters | Fire Agency | 209-986-3621 | 101205903 | Unknown | 12,000 | Transformer | Overhead | No | | | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1072 | PG&E | 04/23/17 | 7.10 | 36.07345 | -120.93450 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101728333 | Unknown | 12,000 | Conductor | Overhead | Yes | 4/23/17 | 7.10 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1073 | PG&E | 04/24/17 | 11.52 | 36.18990 | -121.15129 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101718856 | None | 12,000 | Conductor | Overhead | Yes | 4/24/17 | 11.52 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | tie wire |
| 1074 | PG&E | 04/25/17 | 12.38 | 38.65832 | -120.97622 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 101376746 | Unknown | 0 - 750 | Transformer | Overhead | Yes | 4/25/17 | 12.38 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1075 | PG&E | 04/25/17 | 18.26 | 36.23725 | -119.78071 | Other | Rural | Structure Only | Self Extinguished | N.A. | 100716676 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 4/25/17 | 18.26 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1076 | PG&E | 04/26/17 | 15.55 | 38.15608 | -121.67886 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAPT KENNY WILLIAMS (707)374-2233 | 103826165 | Unknown | 21,000 | Conductor | Overhead | Yes | 4/26/17 | 15.55 | Contact From Object | N.A. | Other | Electric Facility | Other | bird's nest |
| 1077 | PG&E | 04/28/17 | 5.55 | 34.58848 | -120.10568 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 805-683-2724 | 101900122 | Unknown | 12,000 | Conductor | Overhead | Yes | 4/28/17 | 5.55 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1078 | PG&E | 04/28/17 | 14.35 | 37.12469 | -121.62488 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Cal Fire | 103098414 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 4/28/17 | 14.35 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 1079 | PG&E | 04/28/17 | 15.49 | 38.76786 | -120.96253 | Vegetation | Rural | < 0.25 Acres | Fire Agency | chris paper fire investigator, 530/677-1868. Incident #caaeu011821 | 101409833 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 4/28/17 | 15.49 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1080 | PG&E | 04/29/17 | 15.07 | 37.03486 | -121.82423 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 1015878661 | Unknown | 12,000 | Conductor | Overhead | Yes | 4/29/17 | 15.07 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1081 | PG&E | 04/30/17 | 18.31 | 35.63491 | -118.95522 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100163030 | Unknown | 12,000 | Transformer | Overhead | Yes | 4/30/17 | 18.31 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 1082 | PG&E | 05/01/17 | 14.20 | 36.02269 | -119.95837 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | CORCORAN STATION 559-992-2156 | 100709006 | Unknown | 70,000 | Conductor | Overhead | Yes | 5/1/17 | 14.20 | Contact From Object | N.A. | Other | Electric Facility | Other | bird's nest |
| 1083 | PG&E | 05/03/17 | 10.04 | 38.61613 | -119.63202 | Vegetation | Rural | < 0.25 Acres | Fire Agency | eng 44 Eric connors 559-324-2294 | 100770906 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/3/17 | 10.04 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1084 | PG&E | 05/03/17 | 12.51 | 38.19080 | -121.66150 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 103834798 | None | 21,000 | Conductor | Overhead | Yes | 5/3/17 | 12.51 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1085 | PG&E | 05/04/17 | 16.19 | 35.55728 | -120.75348 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101934476 | Unknown | 21,000 | Conductor | Overhead | Yes | 5/4/17 | 16.19 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1086 | PG&E | 05/05/17 | 15.52 | 40.37758 | -123.00187 | Vegetation | Rural | < 3 Meters | Self Extinguished | N.A. | 101501566 | None | 12,000 | Conductor | Overhead | Yes | 5/5/17 | 15.52 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1087 | PG&E | 05/06/17 | 1.56 | 37.32997 | -120.83297 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 103834182 | Unknown | 12,000 | Conductor | Overhead | Yes | 5/6/17 | 1.56 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1088 | PG&E | 05/06/17 | 11.18 | 40.79512 | -124.02902 | Vegetation | Rural | < 3 Meters | Fire Agency | chief rick harden 7074423352 | 103661154 | Unknown | 12,000 | Conductor | Overhead | Yes | 5/6/17 | 11.18 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1089 | PG&E | 05/06/17 | 12.43 | 40.76227 | -124.16195 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 100598152 | Unknown | 12,000 | Conductor | Overhead | Yes | 5/6/17 | 12.43 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1090 | PG&E | 05/06/17 | 15.00 | 39.24580 | -123.77854 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 102185559 | Unknown | 12,000 | Conductor | Overhead | Yes | 5/6/17 | 15.00 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1091 | PG&E | 05/06/17 | 23.46 | 36.16537 | -120.37372 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Cal Fire | 100741510 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/6/17 | 23.46 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1092 | PG&E | 05/09/17 | 11.15 | 40.05970 | -122.18895 | Vegetation | Rural | < 3 Meters | Self Extinguished | N.A. | 101531151 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/9/17 | 11.15 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1093 | PG&E | 05/09/17 | 15.57 | 39.54650 | -121.85667 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100404826 | Unknown | 12,000 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 1094 | PG&E | 05/09/17 | 18.26 | 40.86892 | -123.51559 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | todd wright fire chief. 5307392493 | 103796045 | Unknown | 12,000 | Conductor | Overhead | Yes | 5/9/17 | 18.26 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1095 | PG&E | 05/12/17 | 15.16 | 38.85066 | -121.31683 | Vegetation | Rural | < 0.25 Acres | Unknown | N.A. | 102347828 | Unknown | 21,000 | Conductor | Overhead | Yes | 5/12/17 | 15.16 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | third-party caused |
| 1096 | PG&E | 05/13/17 | 21.49 | 39.67845 | -121.77802 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 911 | 100355502 | Unknown | 12,000 | Conductor | Overhead | Yes | 5/13/17 | 21.49 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | |
| 1097 | PG&E | 05/14/17 | 11.59 | 38.07980 | -122.86650 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 102247059 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 5/14/17 | 11.59 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1098 | PG&E | 05/14/17 | 16.09 | 35.60167 | -119.65665 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | 861-391-7000 | 100131572 | Unknown | 21,000 | Conductor | Overhead | Yes | 5/14/17 | 16.09 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1099 | PG&E | 05/15/17 | 3.05 | 35.62610 | -120.88916 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 101873289 | Unknown | 21,000 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1100 | PG&E | 05/15/17 | | | | | | | | | | | | | | | | | | | | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|------|--------------|----------|-------|----------|------------|--------------------|--------------------|------------------|-------------------|-------------------------|-------------------------|-----------------|-----------------|----------------------------------|------------|---------------------|---------|--------|-----------------------------|------------------------------|---------------------|--------------------|---------------------|--------------------|
| 2 | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Field Observations | Equipment #/Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 1160 | PG&E | 06/17/17 | 15:49 | 36.93896 | -119.68463 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 103406061 | Unknown | 21,000 | Conductor | Overhead | Yes | 6/17/17 | 15:49 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1161 | PG&E | 06/18/17 | 23:49 | 39.19494 | -122.96321 | Vegetation | Rural | < 0.25 Acres | Unknown | N.A. | 102160857 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/18/17 | 23:49 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1162 | PG&E | 06/18/17 | 12:22 | 36.72578 | -119.79068 | Vegetation | Urban | < 3 Meters | Fire Agency | Unknown | 100894729 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 6/18/17 | 12:22 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1163 | PG&E | 06/18/17 | 13:10 | 38.23703 | -122.67015 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 102007208 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 6/18/17 | 13:10 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1164 | PG&E | 06/18/17 | 18:09 | 37.55165 | -122.29253 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 100309893 | Unknown | 21,000 | Conductor | Overhead | Yes | 6/18/17 | 18:09 | Equipment/ Facility Failure | Guy/Span Wire | N.A. | N.A. | Unknown | |
| 1165 | PG&E | 06/18/17 | 20:16 | 38.88844 | -122.02044 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 101650987 | Unknown | 12,000 | Lightning Arrestor | Overhead | Yes | 6/18/17 | 20:16 | Equipment/ Facility Failure | Lightning Arrestor | N.A. | N.A. | Unknown | |
| 1166 | PG&E | 06/18/17 | 21:07 | 37.83974 | -121.26943 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 102085809 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/18/17 | 21:07 | Contact From Object | Vehicle | N.A. | N.A. | Human Error | third-party caused |
| 1167 | PG&E | 06/18/17 | 22:12 | 38.53900 | -122.79203 | Vegetation | Urban | < 3 Meters | Fire Agency | Unknown | 102029435 | Unknown | 12,000 | Other | Overhead | Yes | 6/18/17 | 22:12 | Equipment/ Facility Failure | Voltage Regulator | N.A. | N.A. | Unknown | |
| 1168 | PG&E | 06/18/17 | 23:12 | 36.75747 | -119.66455 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 100780126 | PACIFIC BELL | 12,000 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1169 | PG&E | 06/18/17 | 23:31 | 38.89731 | -121.29467 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 103782395 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/18/17 | 23:31 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1170 | PG&E | 06/19/17 | 01:23 | 35.36762 | -118.95621 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 100252360 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 6/19/17 | 01:23 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1171 | PG&E | 06/19/17 | 13:51 | 39.90633 | -122.17660 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 103841797 | YES | 12,000 | Conductor | Overhead | Yes | 6/19/17 | 13:51 | Contact From Object | N.A. | Vehicle | Pole | Human Error | third-party caused |
| 1172 | PG&E | 06/19/17 | 16:18 | 37.79272 | -121.23058 | Other | Urban | Structure Only | Utility: PG&E | N.A. | 103582825 | Unknown | 17,000 | Transformer | Subsurface | Yes | 6/19/17 | 16:18 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1173 | PG&E | 06/19/17 | 16:26 | 37.93783 | -120.60897 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101282825 | Unknown | 17,000 | Other | Overhead | No | | | Equipment/ Facility Failure | Recloser | N.A. | N.A. | Unknown | |
| 1174 | PG&E | 06/19/17 | 17:31 | 36.76268 | -120.37580 | Vegetation | Rural | < 3 Meters | Unknown | N.A. | 101094343 | Unknown | 12,000 | Transformer | Overhead | Yes | 6/19/17 | 17:31 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1175 | PG&E | 06/20/17 | 18:00 | 38.45496 | -121.62416 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 100489910 | PACIFIC BELL | 12,000 | Lighting Arrestor | Overhead | Yes | 6/19/17 | 18:00 | Equipment/ Facility Failure | Lightning Arrestor | N.A. | N.A. | Unknown | |
| 1176 | PG&E | 06/19/17 | 20:22 | 38.10123 | -120.86969 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 101233468 | Unknown | 12,000 | Transformer | Overhead | Yes | 6/19/17 | 20:22 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1177 | PG&E | 06/20/17 | 00:49 | 39.74900 | -121.89975 | Vegetation | Rural | < 3 Meters | Fire Agency | Cal Fire | 100437523 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 6/20/17 | 00:49 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1178 | PG&E | 06/20/17 | 09:12 | 39.19754 | -121.49499 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101306700 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/20/17 | 09:12 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1179 | PG&E | 06/20/17 | 10:08 | 39.03668 | -121.07630 | Vegetation | Urban | < 3 Meters | Fire Agency | JERRY GOOD 530 268-0844 | 100023174 | None | 12,000 | Conductor | Overhead | Yes | 6/20/17 | 10:08 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1180 | PG&E | 06/20/17 | 13:37 | 37.92473 | -122.08954 | Vegetation | Urban | < 3 Meters | Fire Agency | contra costa fire | 100476159 | PACIFIC BELL | 12,000 | Capacitor Bank | Overhead | Yes | 6/20/17 | 13:37 | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 1181 | PG&E | 06/20/17 | 15:17 | 40.11262 | -123.76774 | Vegetation | Rural | < 3 Meters | Fire Agency | Cal Fire | 100987107 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/20/17 | 15:17 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1182 | PG&E | 06/20/17 | 11:51 | 40.31556 | -124.06111 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 101006039 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/20/17 | 11:51 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1183 | PG&E | 06/20/17 | 18:32 | 37.92810 | -121.23323 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 102132644 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/20/17 | 18:32 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1184 | PG&E | 06/20/17 | 20:46 | 38.90764 | -121.26030 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 100268521 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 6/20/17 | 20:46 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1185 | PG&E | 06/20/17 | 23:16 | 35.63750 | -120.85680 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101873622 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/20/17 | 23:16 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1186 | PG&E | 06/21/17 | 08:41 | 39.16997 | -122.15731 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101637081 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/21/17 | 08:41 | Contact From Object | N.A. | Other | Electric Facility | Human Error | helicopter |
| 1187 | PG&E | 06/21/17 | 14:23 | 38.99208 | -121.35362 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 100027499 | PACIFIC BELL | 12,000 | Transformer | Overhead | Yes | 6/21/17 | 14:23 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1188 | PG&E | 06/22/17 | 9:36 | 38.39647 | -120.47274 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101251777 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/22/17 | 9:36 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | |
| 1189 | PG&E | 06/22/17 | 16:30 | 39.61307 | -121.68724 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Cal Fire | 100347529 | None | 12,000 | Conductor | Overhead | Yes | 6/22/17 | 16:30 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1190 | PG&E | 06/22/17 | 18:07 | 38.75831 | -120.71764 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 101401088 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/22/17 | 18:07 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 1191 | PG&E | 06/22/17 | 19:29 | 35.58886 | -120.66910 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101912249 | Unknown | 21,000 | Conductor | Overhead | Yes | 6/22/17 | 19:29 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1192 | PG&E | 06/23/17 | 13:00 | 39.30510 | -122.48618 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Unknown | 100329817 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 6/23/17 | 13:00 | Vandalism/Theft | N.A. | N.A. | N.A. | Human Error | power theft |
| 1193 | PG&E | 06/23/17 | 20:09 | 40.38565 | -122.28408 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 101505644 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/23/17 | 20:09 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | booster bank |
| 1194 | PG&E | 06/23/17 | 18:23 | 38.76398 | -122.86700 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100293716 | None | 12,000 | Conductor | Overhead | Yes | 6/23/17 | 18:23 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1195 | PG&E | 06/24/17 | 09:31 | 38.94373 | -121.04496 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100903016 | PACIFIC BELL | 12,000 | Transformer | Overhead | Yes | 6/24/17 | 09:31 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1196 | PG&E | 06/24/17 | 14:51 | 38.36218 | -120.76381 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101255656 | Unknown | 12,000 | Fuse | Overhead | Yes | 6/24/17 | 14:51 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | |
| 1197 | PG&E | 06/24/17 | 22:27 | 38.29083 | -120.84900 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | CONTACT BOBBY BOWMAN | 101238865 | None | 12,000 | Conductor | Overhead | Yes | 6/24/17 | 22:27 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1198 | PG&E | 06/25/17 | 18:18 | 37.32357 | -120.55914 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101159230 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/25/17 | 0.7625 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1199 | PG&E | 06/25/17 | 0:23 | 39.40434 | -123.36867 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 102193088 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 6/25/17 | 0:23 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | |
| 1200 | PG&E | 06/25/17 | 6:02 | 39.07743 | -121.52937 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101314125 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/25/17 | 6:02 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 1201 | PG&E | 06/25/17 | 15:37 | 34.93950 | -119.69246 | Vegetation | Rural | 100 - 299 Acres | Fire Agency | 805-686-5074 | 100191652 | None | 12,000 | Conductor | Overhead | Yes | 6/25/17 | 15:37 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 1202 | PG&E | 06/25/17 | 22:14 | 39.02503 | -121.57873 | Vegetation | Rural | < 3 Meters | Fire Agency | Olivehurst FD | 101314072 | Unknown | 21,000 | Conductor | Overhead | Yes | 6/25/17 | 22:14 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1203 | PG&E | 06/26/17 | 8:18 | 37.27331 | -120.52573 | Vegetation | Rural | < 0.25 Acres | Self Extinguished | N.A. | 103218794 | Unknown | 12,000 | Conductor | Overhead | Yes | 6/26/17 | 8:18 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1204 | PG&E | 06/26/17 | 14:29 | 35.97817 | -120.11694 | Vegetation | Urban | .26 - 9.99 Acres | Fire Agency | HENANAGIN 559 386 555 | 102343976 | Unknown | 21,000 | Conductor | Overhead | Yes | 6/26/17 | 14:29 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1205 | PG&E | 06/27/17 | 9:23 | 37.95588 | -122.61762 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | marin county fire | 102260068 | UNFILED | 12,000 | Conductor | Overhead | Yes | 6/27/17 | 9:23 | Other | N.A. | N.A. | Electric Facility | Unknown | |
| 1206 | PG&E | 06/27/17 | 17:47 | 39.51264 | -122.20333 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100341056 | None | 21,000 | Conductor | Overhead | Yes | 6/27/17 | 17:47 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1207 | PG&E | 06/28/17 | 09:57 | 35.90555 | -120.84214 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Cal Fire | 101765453 | Unknown | 12,000 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | |
| 1208 | PG&E | 06/28/17 | 13:09 | 34.92757 | -119.62041 | Building | Rural | Structure Only | Fire Agency | (805)683-2724) | 100190548 | Unknown | 21,000 | Conductor | Overhead | Yes | 6/28/17 | 13:09 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1209 | PG&E | 06/29/17 | 18:31 | 38.44450 | -122.89990 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 102021185 | PACIFIC BELL | 0 - 750 | Conductor | Overhead | Yes | 6/29/17 | 18:31 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1210 | PG&E | 06/29/17 | 21:55 | 35.98040 | -121.09557 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Cal Fire | 103312369 | Unknown | 12,000 | Transformer | Overhead | Yes | 6/29/17 | 21:55 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1211 | PG&E | 06/30/17 | 10:24 | 39.02621 | -121.54317 | Vegetation | Rural | < 0.25 Acres | Unknown | N.A. | 101341770 | Unknown | 21,000 | Conductor | Overhead | Yes | 6/30/17 | 10:24 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1212 | PG&E | 06/30/17 | 01:20 | 39.82098 | -121.58534 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 103840463 | YES | 12,000 | Conductor | Overhead | Yes | 6/30/17 | 01:20 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1213 | PG&E | 06/30/17 | 23:54 | 38.57941 | -122.88349 | Vegetation | Rural | < 3 Meters | Customer | N.A. | | | | | | | | | | | | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|------|--------------|----------|-------|----------|------------|--------------------|--------------------|------------------|---------------|--|-------------------------|-----------------|-----------------|----------------------------------|----------|---------------------|---------|-------|-----------------------------|------------------------------|---------------------|--------------------|---------------------|--------------------|
| 2 | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Field Observations | Equipment / Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 1273 | PG&E | 07/19/17 | 17:19 | 39.41242 | -123.81234 | Vegetation | Rural | < 0.25 Acres | Fire Agency | DRUE RHOADS 707 964 5673 | 102201550 | YES | 12,000 | Conductor | Overhead | Yes | 7/19/17 | 17:19 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1274 | PG&E | 07/20/17 | 20:57 | 37.73609 | -122.49208 | Building | Urban | Structure Only | Unknown | N.A. | 101813719 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 7/20/17 | 20:57 | Wire-Wire Contact | N.A. | N.A. | N.A. | Unknown | |
| 1275 | PG&E | 07/20/17 | 01:46 | 36.52545 | -119.68200 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 100830639 | Unknown | 0 - 750 | Lightning Arrestor | Overhead | Yes | 7/20/17 | 01:46 | Equipment/ Facility Failure | Lightning Arrestor | N.A. | N.A. | Unknown | |
| 1276 | PG&E | 07/20/17 | 04:27 | 38.06420 | -120.87106 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | chris costales 209 754 2735 | 102142834 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/20/17 | 04:27 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1277 | PG&E | 07/20/17 | 13:45 | 35.08036 | -120.55383 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | PAUL LEE 805 903-3416 INC # 8291 | 101941116 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/20/17 | 13:45 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | |
| 1278 | PG&E | 07/20/17 | 17:00 | 37.82664 | -121.23503 | Vegetation | Urban | < 3 Meters | Customer | N.A. | 103984380 | Unknown | 12,000 | Capacitor Bank | Overhead | Yes | 7/20/17 | 17:00 | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 1279 | PG&E | 07/21/17 | 13:27 | 38.26954 | -120.93719 | Vegetation | Rural | .26 - 9.99 Acres | Unknown | N.A. | 101245524 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/21/17 | 13:27 | Contact From Object | Vehicle | N.A. | N.A. | Human Error | Third-party caused |
| 1280 | PG&E | 07/21/17 | 20:26 | 41.06550 | -121.39320 | Vegetation | Rural | < 0.25 Acres | Customer | N.A. | 101549629 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/21/17 | 20:26 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1281 | PG&E | 07/22/17 | 12:25 | 40.87950 | -123.76380 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Josh ,comander chief of forest service. | 100980577 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/22/17 | 12:25 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 1282 | PG&E | 07/22/17 | 14:38 | 37.29945 | -122.16306 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 100265488 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/22/17 | 14:38 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1283 | PG&E | 07/22/17 | 16:01 | 40.83143 | -124.05389 | Vegetation | Rural | < 0.25 Acres | Fire Agency | BATTALION CHIEF CURT WATKINS, 707-825-2000 | 100983827 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 7/22/17 | 16:01 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 1284 | PG&E | 07/23/17 | 09:22 | 40.64201 | -122.23025 | Vegetation | Rural | < 0.25 Acres | Fire Agency | CAPT? | 101459708 | FRONTIER COMM | 12,000 | Conductor | Overhead | Yes | 7/23/17 | 09:22 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1285 | PG&E | 07/23/17 | 16:32 | 36.24055 | -119.81283 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Brandon Jones (559) 852-2884 | 100783832 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/23/17 | 16:32 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1286 | PG&E | 07/23/17 | 18:25 | 39.67233 | -123.53360 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 103823226 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/23/17 | 18:25 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1287 | PG&E | 07/23/17 | 19:41 | 36.21714 | -119.90973 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Brandon Jones (559) 852-2884 | 103846605 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/23/17 | 19:41 | Contact From Object | N.A. | Vehicle | Human Error | Unknown | |
| 1288 | PG&E | 07/23/17 | 14:01 | 37.26349 | -122.33843 | Vegetation | Rural | < 0.25 Acres | Fire Agency | mike klink 650-879-0121 | 100322130 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 7/24/17 | 14:01 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | Third-party caused |
| 1289 | PG&E | 07/24/17 | 16:07 | 37.25369 | -121.96760 | Vegetation | Urban | < 0.25 Acres | Fire Agency | C1702050039 | 103447162 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 7/24/17 | 16:07 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1290 | PG&E | 07/24/17 | 19:31 | 38.35192 | -120.71029 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101263632 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/24/17 | 19:31 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1291 | PG&E | 07/24/17 | 21:45 | 35.60243 | -120.92107 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Unknown | 101860186 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/24/17 | 21:45 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1292 | PG&E | 07/25/17 | 15:51 | 38.37795 | -122.53878 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 102031447 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/25/17 | 15:51 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1293 | PG&E | 07/25/17 | 19:12 | 39.59970 | -121.44490 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100403612 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/25/17 | 19:12 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1294 | PG&E | 07/26/17 | 06:55 | 36.78124 | -119.75525 | Vegetation | Urban | < 3 Meters | Fire Agency | FRESNO FIRE, BATALION 1, FULMER 559 993 2861 | 100868522 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 7/26/17 | 06:55 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1295 | PG&E | 07/26/17 | 14:02 | 40.99973 | -121.95793 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 101512624 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/26/17 | 14:02 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1296 | PG&E | 07/28/17 | 16:57 | 35.47270 | -120.99380 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | TOM MCEWEN 805-903-3409 | 101933868 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/28/17 | 16:57 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1297 | PG&E | 07/28/17 | 19:20 | 35.72756 | -120.99030 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | San Luis Obispo CDF | 101945496 | None | 21,000 | Conductor | Overhead | Yes | 7/28/17 | 19:20 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1298 | PG&E | 07/29/17 | 13:18 | 39.46313 | -121.45951 | Vegetation | Rural | < 0.25 Acres | Fire Agency | nuss fowler 530 521 8056 | 103846783 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/29/17 | 13:18 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1299 | PG&E | 07/29/17 | 13:28 | 35.45229 | -120.38344 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 101899516 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 7/29/17 | 13:28 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1300 | PG&E | 07/29/17 | 14:52 | 37.05999 | -122.00113 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Scotts Valley Fire Dept. | 101679068 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 7/29/17 | 14:52 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1301 | PG&E | 07/29/17 | 17:56 | 37.02507 | -121.53583 | Vegetation | Rural | < 3 Meters | Fire Agency | GEORGE MARSHALL | 100610842 | Unknown | 21,000 | Conductor | Overhead | Yes | 7/29/17 | 17:56 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1302 | PG&E | 07/29/17 | 18:08 | 37.94875 | -121.34571 | Vegetation | Rural | < 0.25 Acres | Fire Agency | 911 | 102126507 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/29/17 | 18:08 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1303 | PG&E | 07/29/17 | 20:45 | 35.45171 | -120.61711 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 101941008 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 7/29/17 | 20:45 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | Third-party caused |
| 1304 | PG&E | 07/30/17 | 09:46 | 38.91318 | -122.61788 | Vegetation | Rural | < 0.25 Acres | Fire Agency | mike wink | 102151066 | None | 0 - 750 | Conductor | Overhead | Yes | 7/30/17 | 09:46 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1305 | PG&E | 07/31/17 | 12:58 | 37.09707 | -122.27965 | Vegetation | Rural | < 0.25 Acres | Customer | N.A. | 101679025 | Unknown | 0 - 750 | Conductor | Overhead | No | 7/31/17 | 12:58 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1306 | PG&E | 07/31/17 | 13:46 | 35.97865 | -120.11100 | Vegetation | Rural | < 0.25 Acres | Customer | N.A. | 100695134 | Unknown | 21,000 | Conductor | Overhead | Yes | 7/31/17 | 14:10 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1307 | PG&E | 07/31/17 | 14:41 | 38.79675 | -121.13288 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 103782414 | Unknown | 12,000 | Conductor | Overhead | Yes | 7/31/17 | 14:41 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1308 | PG&E | 08/01/17 | 12:23 | 36.04123 | -119.50529 | Vegetation | Rural | < 0.25 Acres | Unknown | N.A. | 100661556 | Unknown | 0 - 750 | Other | Overhead | Yes | 8/1/17 | 12:23 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 1309 | PG&E | 08/02/17 | 9:42 | 39.22744 | -123.10811 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 101190510 | None | 60,000 | Conductor | Overhead | Yes | 8/2/17 | 9:42 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1310 | PG&E | 08/02/17 | 5:54 | 40.79856 | -123.39614 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Cal Fire | 100974913 | Unknown | 12,000 | Conductor | Overhead | Yes | 8/2/17 | 5:54 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1311 | PG&E | 08/02/17 | 8:58 | 37.56179 | -121.94860 | Vegetation | Rural | < 0.25 Acres | Fire Agency | FREMONT FIRE DEPT. 911 | 100940374 | PACIFIC BELL | 12,000 | Other | Overhead | Yes | 8/2/17 | 8:58 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1312 | PG&E | 08/02/17 | 17:04 | 37.31632 | -122.07225 | Vegetation | Urban | < 0.25 Acres | Fire Agency | TONY RAINIERI 408-378-4010 | 100534186 | Unknown | 12,000 | Conductor | Overhead | No | 8/2/17 | 17:04 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1313 | PG&E | 08/02/17 | 18:16 | 37.39296 | -120.62127 | Vegetation | Urban | < 3 Meters | Fire Agency | 2099663621 | 101190510 | PACIFIC BELL | 12,000 | Transformer | Overhead | Yes | 8/2/17 | 18:16 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1314 | PG&E | 08/03/17 | 10:53 | 39.07320 | -121.08679 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 100372742 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 8/3/17 | 10:53 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1315 | PG&E | 08/03/17 | 11:16 | 38.11924 | -122.50154 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | SSR172150008 | 102227219 | Unknown | 12,000 | Conductor | Overhead | Yes | 8/3/17 | 11:16 | Contact From Object | N.A. | Pole | Human Error | Unknown | |
| 1316 | PG&E | 08/03/17 | 22:44 | 39.07110 | -121.48700 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | ART PAQUETTE 530-633-0861 | 101335644 | PACIFIC BELL | 12,000 | Unknown | Overhead | No | 8/3/17 | 22:44 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1317 | PG&E | 08/04/17 | 09:54 | 38.60394 | -121.05918 | Vegetation | Rural | < 3 Meters | Fire Agency | D. Franks 530-622-3858, Incident #022602 | 101411052 | PACIFIC BELL | 21,000 | Capacitor Bank | Overhead | Yes | 8/4/17 | 09:54 | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 1318 | PG&E | 08/04/17 | 18:14 | 35.61928 | -120.65890 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101912293 | PACIFIC BELL | 12,000 | Fuse | Overhead | Yes | 8/4/17 | 18:14 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | |
| 1319 | PG&E | 08/05/17 | 08:33 | 38.45835 | -120.86954 | Vegetation | Rural | < 0.25 Acres | Fire Agency | JEFF MICHEL- 530 409 2223 | 101236223 | Unknown | 0 - 750 | Conductor | Overhead | Yes | 8/5/17 | 08:33 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1320 | PG&E | 08/05/17 | 18:08 | 39.09683 | -123.21466 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 102196629 | Unknown | 12,000 | Conductor | Overhead | Yes | 8/5/17 | 18:08 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1321 | PG&E | 08/05/17 | 18:09 | 36.96750 | -120.08993 | Vegetation | Urban | .26 - 9.99 Acres | Fire Agency | Unknown | 101136476 | Unknown | 12,000 | Conductor | Overhead | Yes | 8/5/17 | 18:09 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1322 | PG&E | 08/05/17 | 19:21 | 36.76912 | -119.61010 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100725102 | Unknown | 12,000 | Other | Overhead | Yes | 8/5/17 | 19:21 | Equipment/ Facility Failure | Recloser | N.A. | N.A. | Unknown | |
| 1323 | PG&E | 08/06/17 | 11:38 | 36.58574 | -121.71213 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101747125 | Unknown | 12,000 | Conductor | Overhead | Yes | 8/6/17 | 11:38 | Contact From Object | N.A. | Vehicle | Pole | Human Error | Third-party caused |
| 1324 | PG&E | 08/06/17 | 18:21 | 40.60120 | -122.23480 | Vegetation | Rural | < 3 Meters | Fire Agency | 17CASH4007992 | 101470083 | Unknown | 12,000 | Other | Overhead | Yes | 8/6/17 | 18:21 | Contact From Object | N.A. | Other | Electric Facility | Weather | lightning strike |
| 1325 | | | | | | | | | | | | | | | | | | | | | | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|------|--------------|----------|-------|----------|------------|--------------------|--------------------|-------------------|-------------------|---|-------------------------|------------------------|-----------------|----------------------------------|----------|---------------------|----------|-------|--------------------------------------|------------------------------|---------------------|--------------------|---------------------|--------------------|
| 2 | Utility Name | Date | Time | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Field Observations | Equipment #/Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 1386 | PG&E | 09/02/17 | 12:01 | 37.66445 | -121.92227 | Vegetation | Rural | < 3 Meters | Customer | N.A. | 100956020 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 9/2/17 | 12:01 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1387 | PG&E | 09/02/17 | 16:18 | 37.26897 | -121.80564 | Vegetation | Urban | < 3 Meters | Fire Agency | Unknown | 100584311 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 9/2/17 | 16:18 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1388 | PG&E | 09/02/17 | 18:00 | 37.93380 | -122.40690 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 102347407 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/2/17 | 18:00 | Contact From Object | N.A. | Vehicle | N.A. | Human Error | Third-party caused |
| 1389 | PG&E | 09/03/17 | 7:12 | 37.37432 | -122.21838 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Local | 100270106 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/3/17 | 7:12 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1390 | PG&E | 09/03/17 | 12:52 | 37.21616 | -119.48067 | Vegetation | Rural | 1000 - 4999 Acres | Fire Agency | Cal Fire | 103345573 | Unknown | 0 – 750 | Conductor | Overhead | Yes | 9/3/17 | 12:52 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1391 | PG&E | 09/03/17 | 17:52 | 37.49559 | -119.83867 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 101088621 | Unknown | 21,000 | Transformer | Overhead | Yes | 9/3/17 | 17:52 | Contact From Object | N.A. | Other | Electric Facility | Weather | lightning strike |
| 1392 | PG&E | 09/03/17 | 22:57 | 36.05833 | -120.61699 | Vegetation | Rural | 100 - 299 Acres | Fire Agency | CHRIS CHRISTOPHERSON 559-281-4320 | 100739435 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/3/17 | 22:57 | Contact Between Third Party Facility | N.A. | N.A. | Weather | Weather | |
| 1393 | PG&E | 09/04/17 | 0:57 | 36.80240 | -119.82540 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 100856132 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 9/4/17 | 0:57 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1394 | PG&E | 09/04/17 | 3:29 | 39.83171 | -121.84441 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 102300100 | PACIFIC BELL | 12,000 | Conductor | Overhead | No | | | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1395 | PG&E | 09/04/17 | 6:43 | 37.45463 | -121.93311 | Other | Rural | Structure Only | Customer | N.A. | 100557780 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 09/04/17 | 6:43 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1396 | PG&E | 09/05/17 | 1:24 | 39.43168 | -121.55285 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100420238 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/5/17 | 1:24 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1397 | PG&E | 09/05/17 | 6:58 | 39.67273 | -123.51279 | Vegetation | Rural | < 0.25 Acres | Customer | N.A. | 102194697 | VERIZON CALIFO | 12,000 | Conductor | Overhead | Yes | 9/5/17 | 6:58 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1398 | PG&E | 09/05/17 | 7:20 | 39.71095 | -121.79724 | Vegetation | Rural | < 3 Meters | Fire Agency | (530) 538-6841 | 100355255 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/5/17 | 7:20 | Wire-Wire Contact | N.A. | N.A. | Unknown | | |
| 1399 | PG&E | 09/05/17 | 13:51 | 38.18972 | -121.31746 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 103218208 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/5/17 | 13:51 | Contact From Object | N.A. | Vehicle | N.A. | Human Error | Third-party caused |
| 1400 | PG&E | 09/05/17 | 17:51 | 38.34067 | -122.25777 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 102284669 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/5/17 | 17:51 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1401 | PG&E | 09/06/17 | 19:26 | 40.83920 | -122.36350 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 103643183 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/6/17 | 19:26 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1402 | PG&E | 09/06/17 | 20:08 | 37.29255 | -122.29403 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 100258917 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/6/17 | 20:08 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1403 | PG&E | 09/08/17 | 4:47 | 38.74778 | -120.85905 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101391575 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/8/17 | 4:47 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1404 | PG&E | 09/08/17 | 17:21 | 38.60388 | -120.92748 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101379094 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 9/8/17 | 17:21 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1405 | PG&E | 09/08/17 | 21:14 | 37.96038 | -120.37636 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | John Life 209-984-5623 | 101042521 | Unknown | 17,000 | Conductor | Overhead | Yes | 9/8/17 | 21:14 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1406 | PG&E | 09/09/17 | 18:36 | 36.66181 | -121.54766 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101769870 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/9/17 | 18:36 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1407 | PG&E | 09/10/17 | 1:22 | 39.25988 | -121.49023 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | TYLER LOPEZ | 101289867 | None | 12,000 | Conductor | Overhead | Yes | 9/10/17 | 1:22 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1408 | PG&E | 09/10/17 | 16:30 | 37.30393 | -120.52747 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Merced County FD | 1011611316 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 9/10/17 | 16:30 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1409 | PG&E | 09/11/17 | 7:18 | 37.00083 | -121.66574 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 100621936 | VERIZON CALIFO | 0 – 750 | Conductor | Overhead | No | | | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1410 | PG&E | 09/11/17 | 8:50 | 38.95146 | -121.84204 | Vegetation | Rural | < 3 Meters | Self Extinguished | N.A. | 101789954 | PACIFIC BELL | 21,000 | Fuse | Overhead | Yes | 9/11/17 | 8:50 | Contact From Object | N.A. | Other | Electric Facility | Unknown | lightning strike |
| 1411 | PG&E | 09/11/17 | 23:50 | 40.86724 | -124.08827 | Vegetation | Rural | < 3 Meters | Fire Agency | BOB | 100984579 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/11/17 | 23:50 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1412 | PG&E | 09/12/17 | 9:24 | 39.74085 | -121.60787 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100330302 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/12/17 | 9:24 | Contact From Object | N.A. | Vehicle | N.A. | Human Error | Third-party caused |
| 1413 | PG&E | 09/12/17 | 17:18 | 39.45106 | -121.60519 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | tom klage 530 538-7888 | 100419482 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/12/17 | 17:18 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1414 | PG&E | 09/14/17 | 11:02 | 39.11112 | -121.55647 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 101320308 | None | 12,000 | Switch | Overhead | Yes | 9/14/17 | 11:02 | Equipment/ Facility Failure | Switch | N.A. | N.A. | Unknown | |
| 1415 | PG&E | 09/14/17 | 12:09 | 39.50393 | -121.54528 | Vegetation | Urban | < 0.25 Acres | Fire Agency | 530-538-2448 | 100372805 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/14/17 | 12:09 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1416 | PG&E | 09/14/17 | 14:06 | 40.29421 | -123.81736 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 100989497 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/14/17 | 14:06 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1417 | PG&E | 09/15/17 | 14:55 | 39.74607 | -121.48853 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 100335239 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/15/17 | 14:55 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1418 | PG&E | 09/17/17 | 15:05 | 36.64729 | -119.38613 | Vegetation | Rural | < 3 Meters | Customer | N.A. | 100738741 | VERIZON CALIFO | 0 – 750 | Conductor | Overhead | Yes | 9/17/17 | 15:05 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1419 | PG&E | 09/17/17 | 17:38 | 38.99459 | -121.02607 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100295337 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/17/17 | 17:38 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1420 | PG&E | 09/18/17 | 13:01 | 39.38885 | -121.49588 | Vegetation | Rural | < 3 Meters | Fire Agency | Cal Fire | 1017895057 | Unknown | 0 – 750 | Conductor | Overhead | Yes | 9/18/17 | 13:01 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1421 | PG&E | 09/18/17 | 15:10 | 39.60135 | -122.05551 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 103849874 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/18/17 | 15:10 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1422 | PG&E | 09/18/17 | 18:01 | 38.21975 | -122.54300 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101997149 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/18/17 | 18:01 | Contact From Object | N.A. | Vehicle | N.A. | Human Error | Third-party caused |
| 1423 | PG&E | 09/18/17 | 19:01 | 38.07423 | -122.82861 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 102229251 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/18/17 | 19:01 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1424 | PG&E | 09/18/17 | 23:50 | 37.90879 | -120.48652 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | incident comander geoff marshall 209-419-4407 | 101040882 | Unknown | 17,000 | Conductor | Overhead | Yes | 9/18/17 | 23:50 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1425 | PG&E | 09/19/17 | 19:13 | 35.47836 | -119.29591 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100207112 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/19/17 | 19:13 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 1426 | PG&E | 09/20/17 | 2:06 | 37.25968 | -122.32223 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100322388 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/20/17 | 2:06 | Contact From Object | N.A. | Vehicle | N.A. | Human Error | Third-party caused |
| 1427 | PG&E | 09/20/17 | 8:41 | 36.94037 | -120.90142 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Cal Fire | None | Pole 216 - Arborea Tap | 70,000 | Conductor | Overhead | Yes | 9/20/17 | 8:41 | Contact From Object | N.A. | Other | Electric Facility | Other | bird's nest |
| 1428 | PG&E | 09/21/17 | 8:39 | 39.61470 | -121.72582 | Vegetation | Rural | < 0.25 Acres | Customer | N.A. | 100347380 | Unknown | 0 – 750 | Conductor | Overhead | Yes | 9/21/17 | 8:39 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1429 | PG&E | 09/22/17 | 14:28 | 36.09612 | -120.05766 | Vegetation | Rural | < 0.25 Acres | Fire Agency | SAME AS TAG. FD NOT STANDING BY UPON ARRIVAL | 100663084 | Unknown | 12,000 | Capacitor Bank | Overhead | No | | | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 1430 | PG&E | 09/23/17 | 9:16 | 37.01267 | -120.62562 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 101181497 | Unknown | 12,000 | Conductor | Overhead | Yes | 9/23/17 | 9:16 | Equipment/ Facility Failure | Pole | N.A. | N.A. | Unknown | |
| 1431 | PG&E | 09/23/17 | 14:17 | 40.65090 | -122.29740 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | DARREN STEWART 448-2421 | 101467221 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/23/17 | 14:17 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 1432 | PG&E | 09/24/17 | 2:13 | 38.10460 | -120.98901 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Cal Fire | Pole 016/297 | Unknown | 60,000 | Conductor | Overhead | Yes | 9/24/17 | 2:13 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1433 | PG&E | 09/24/17 | 7:54 | 37.40140 | -122.02740 | Vegetation | Urban | < 3 Meters | Fire Agency | Unknown | 100515206 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/24/17 | 7:54 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1434 | PG&E | 09/24/17 | 16:42 | 38.38690 | -122.96670 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | DOUG JONES | 101973946 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 9/24/17 | 16:42 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1435 | PG&E | 09/25/17 | 19:49 | 36.81370 | -121.72098 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | Tower 058/249 | Unknown | 230,000 | Conductor | Overhead | Yes | 9/25/17 | 19:49 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1436 | PG&E | 09/26/17 | 17:44 | 38.06427 | -122.80563 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 102228291 | Unknown | 12,000 | Other | Overhead | Yes | 9/26/17 | 17:44 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 1437 | PG&E | 09/27/17 | 9:11 | 39.01626 | -122.86854 | Vegetation | Rural | < 3 Meters | Customer | N.A. | 102143577 | PACIFIC BELL | 12,000 | Transformer | Overhead | Yes | 9/27/17 | 9:11 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1438 | PG&E | 09/27/17 | 12:12 | 39.48450 | -121.35450 | Vegetation | Rural | < 0.25 Acres | Fire Agency | bill lopez cell 530 521-8052 | 100428924 | PACIFIC BELL | 12,000 | Fuse | Overhead | Yes | 9/27/17 | 12:12 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1439 | | | | | | | | | | | | | | | | | | | | | | | | |

| 1 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|------|--------------|-----------|---------|----------|------------|--------------------|--------------------|------------------|-------------------|---------------------------------------|-------------------------|-----------------|-----------------|----------------------------------|----------|---------------------|----------|-------|-----------------------------|------------------------------|---------------------|------------------------|---------------------|--------------------|
| 2 | Utility Name | Inc. Date | Column3 | Latitude | Longitude | Material at Origin | Land Use at Origin | Size | Suppressed by | Suppressing Agency | Facility Identification | Other Companies | Voltage (Volts) | Equipment Involved With Ignition | Type | Was There an Outage | Date | Time | Field Observations | Equipment #/Facility Failure | Contact From Object | Facility Contacted | Contributing Factor | Notes |
| 1498 | PG&E | 10/17/17 | 18.22 | 35.42566 | -119.02972 | Vegetation | Urban | < 3 Meters | Self Extinguished | N.A. | 100144662 | PACIFIC BELL | 12,000 | Capacitor Bank | Overhead | Yes | 10/17/17 | 18:22 | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 1499 | PG&E | 10/18/17 | 13.58 | 37.63605 | -122.07925 | Vegetation | Urban | < 3 Meters | Fire Agency | Unknown | 100952408 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 10/18/17 | 13:58 | Contact From Object | N.A. | Vehicle | N.A. | Human Error | |
| 1500 | PG&E | 10/20/17 | 5.59 | 36.74749 | -119.76295 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 100859697 | Unknown | 12,000 | Conductor | Overhead | Yes | 10/20/17 | 5:59 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1501 | PG&E | 10/20/17 | 6.18 | 39.29221 | -121.01573 | Vegetation | Rural | < 3 Meters | Fire Agency | PHILLIP NUNNINK INCIDENT # 27272 | 100087647 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 10/20/17 | 6:18 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1502 | PG&E | 10/20/17 | 9.06 | 36.03599 | -120.05797 | Vegetation | Rural | 300 - 999 Acres | Fire Agency | Unknown | Pole 009/009 | Unknown | 70,000 | Conductor | Overhead | Yes | 10/20/17 | 9:06 | Contact From Object | N.A. | Other | Electric Facility | Other | bird's nest |
| 1503 | PG&E | 10/20/17 | 13.43 | 35.35300 | -119.98730 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | 3421 | 100136483 | Unknown | 12,000 | Conductor | Overhead | Yes | 10/20/17 | 13:43 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1504 | PG&E | 10/20/17 | 13.45 | 34.55317 | -120.53029 | Vegetation | Rural | 100 - 299 Acres | Fire Agency | Unknown | 101921492 | Unknown | 12,000 | Conductor | Overhead | Yes | 10/20/17 | 13:45 | Equipment/ Facility Failure | Crossarm | N.A. | N.A. | Unknown | |
| 1505 | PG&E | 10/20/17 | 14.00 | 36.92155 | -119.72828 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100727124 | Unknown | 21,000 | Fuse | Overhead | Yes | 10/20/17 | 14:00 | Equipment/ Facility Failure | Other | N.A. | N.A. | Unknown | |
| 1506 | PG&E | 10/21/17 | 15.08 | 39.06400 | -122.77645 | Vegetation | Rural | < 3 Meters | Fire Agency | Cal Fire | 102155186 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 10/21/17 | 15:08 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1507 | PG&E | 10/21/17 | 16.05 | 37.59108 | -122.00995 | Vegetation | Urban | .26 - 9.99 Acres | Fire Agency | Unknown | 103516949 | Unknown | 0 – 750 | Conductor | Overhead | Yes | 10/21/17 | 16:05 | Contact From Object | N.A. | Balloons | Electric Facility | Human Error | Third-party caused |
| 1508 | PG&E | 10/23/17 | 19.34 | 36.07720 | -121.01900 | Vegetation | Rural | < 0.25 Acres | Customer | N.A. | 101763398 | Unknown | 12,000 | Conductor | Overhead | Yes | 10/23/17 | 19:34 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1509 | PG&E | 10/23/17 | 21.24 | 37.37133 | -122.34799 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 100270421 | Unknown | 12,000 | Conductor | Overhead | Yes | 10/23/17 | 21:24 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1510 | PG&E | 10/24/17 | 15.23 | 36.85988 | -121.79474 | Vegetation | Rural | < 0.25 Acres | Unknown | N.A. | 101789001 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 10/24/17 | 15:23 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1511 | PG&E | 10/26/17 | 10.53 | 36.40355 | -121.91219 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101777002 | Unknown | 12,000 | Conductor | Overhead | Yes | 10/26/17 | 10:53 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1512 | PG&E | 10/28/17 | 15.26 | 39.45162 | -123.38381 | Vegetation | Rural | < 3 Meters | Fire Agency | Cal Fire | 102209084 | Unknown | 12,000 | Conductor | Overhead | Yes | 10/28/17 | 15:26 | Contact From Object | N.A. | Vehicle | Communication Facility | Human Error | |
| 1513 | PG&E | 10/28/17 | 20.08 | 35.02222 | -118.76915 | Vegetation | Rural | < 0.25 Acres | Unknown | N.A. | 100223850 | Unknown | 12,000 | Fuse | Overhead | Yes | 10/28/17 | 20:08 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | |
| 1514 | PG&E | 10/31/17 | 18.56 | 39.00345 | -121.69065 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | Pole 010/208 | Unknown | 60,000 | Conductor | Overhead | Yes | 10/31/17 | 18:56 | Contact From Object | N.A. | Vehicle | Electric Facility | Human Error | Third-party caused |
| 1515 | PG&E | 10/31/17 | 21.02 | 39.11189 | -122.91633 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | Structure 020/003 | Unknown | 60,000 | Conductor | Overhead | Yes | 10/31/17 | 21:02 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1516 | PG&E | 11/06/17 | 9.59 | 37.14600 | -121.66753 | Vegetation | Rural | < 0.25 Acres | Fire Agency | INCIDENT # 1717CASCUD008183 | 103570543 | YES | 21,000 | Conductor | Overhead | Yes | 11/6/17 | 9:59 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1517 | PG&E | 11/06/17 | 15.06 | 38.25980 | -122.50300 | Vegetation | Urban | < 0.25 Acres | Fire Agency | Unknown | 101982913 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 11/6/17 | 15:06 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1518 | PG&E | 11/08/17 | 07.11 | 37.73669 | -120.34587 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 101917114 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 11/8/17 | 07:11 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1519 | PG&E | 11/08/17 | 14.53 | 37.79198 | -122.22211 | Building | Urban | Structure Only | Fire Agency | Unknown | 101352529 | Unknown | 4,000 | Conductor | Overhead | Yes | 11/8/17 | 14:53 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1520 | PG&E | 11/11/17 | 11.57 | 35.11908 | -120.39364 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Jordan Dayley ph#929-3911,engine#3467 | 101931190 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 11/11/17 | 11:57 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1521 | PG&E | 11/12/17 | 19.44 | 36.73779 | -119.77691 | Building | Urban | < 0.25 Acres | Fire Agency | capt will johnson | 100871063 | Unknown | 12,000 | Conductor | Overhead | Yes | 11/12/17 | 19:44 | Equipment/ Facility Failure | Capacitor Bank | N.A. | N.A. | Unknown | |
| 1522 | PG&E | 11/14/17 | 07.43 | 37.32400 | -120.81456 | Vegetation | Rural | < 3 Meters | Fire Agency | cammu #023223 | 103853299 | Unknown | 12,000 | Transformer | Overhead | Yes | 11/14/17 | 07:43 | Equipment/ Facility Failure | Transformer | N.A. | N.A. | Unknown | |
| 1523 | PG&E | 11/17/17 | 08.53 | 37.08016 | -120.01945 | Other | Rural | < 3 Meters | Utility: PG&E | N.A. | 101029626 | Unknown | 12,000 | Fuse | Overhead | Yes | 11/17/17 | 09:53 | Equipment/ Facility Failure | Fuse | N.A. | N.A. | Unknown | |
| 1524 | PG&E | 11/20/17 | 08.32 | 38.75835 | -120.84385 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Unknown | 101389405 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 11/20/17 | 08:32 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1525 | PG&E | 11/20/17 | 20.05 | 35.49951 | -118.90994 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | 661-324-6551 | 103782809 | None | 0 – 750 | Conductor | Overhead | Yes | 11/20/17 | 20:05 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1526 | PG&E | 11/21/17 | 11.55 | 37.61013 | -121.33324 | Vegetation | Rural | < 0.25 Acres | Fire Agency | tracy fire dept | 102053617 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 11/21/17 | 11:55 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1527 | PG&E | 11/22/17 | 13.44 | 36.75202 | -121.66363 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Cal Fire | 103154362 | Unknown | 12,000 | Conductor | Overhead | Yes | 11/22/17 | 13:44 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1528 | PG&E | 11/23/17 | 16.29 | 35.77554 | -120.69413 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101860971 | Unknown | 12,000 | Conductor | Overhead | Yes | 11/23/17 | 16:29 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1529 | PG&E | 11/24/17 | 10.33 | 36.62133 | -120.06165 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | KERMAN FIRE DEP. | 100700090 | Unknown | 12,000 | Conductor | Overhead | Yes | 11/24/17 | 10:33 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1530 | PG&E | 11/25/17 | 6.29 | 36.01436 | -119.95559 | Vegetation | Rural | < 3 Meters | Utility: PG&E | N.A. | 100693913 | Unknown | 12,000 | Conductor | Overhead | Yes | 11/25/17 | 6:29 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1531 | PG&E | 11/26/17 | 10.10 | 36.70981 | -119.56321 | Vegetation | Urban | < 3 Meters | Fire Agency | Unknown | 100815464 | VERIZON CALIFO | 0 – 750 | Conductor | Overhead | Yes | 11/26/17 | 10:10 | Contact From Object | N.A. | Vegetation | Electric Facility | Human Error | Third-party caused |
| 1532 | PG&E | 11/27/17 | 06.23 | 36.69419 | -121.65832 | Vegetation | Urban | < 3 Meters | Fire Agency | 831-758-7261 | 101723997 | Unknown | 12,000 | Conductor | Overhead | Yes | 11/27/17 | 06:23 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1533 | PG&E | 11/27/17 | 11.11 | 37.12962 | -122.31244 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100268264 | Unknown | 12,000 | Conductor | Overhead | Yes | 11/27/17 | 11:11 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1534 | PG&E | 11/28/17 | 15.49 | 36.49743 | -119.79086 | Vegetation | Rural | < 3 Meters | Self Extinguished | N.A. | 100806272 | Unknown | 12,000 | Other | Overhead | Yes | 11/28/17 | 15:49 | Equipment/ Facility Failure | Voltage Regulator | N.A. | N.A. | Unknown | |
| 1535 | PG&E | 11/29/17 | 17.34 | 38.68410 | -120.65461 | Vegetation | Rural | < 3 Meters | Fire Agency | Cal Fire | 101419450 | PACIFIC BELL | 21,000 | Conductor | Overhead | Yes | 11/29/17 | 17:34 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1536 | PG&E | 12/07/17 | 12.25 | 34.71151 | -120.17715 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | Pole 015/220 | Unknown | 115,000 | Unknown | Overhead | No | | | Unknown | N.A. | N.A. | N.A. | Unknown | |
| 1537 | PG&E | 12/12/17 | 4.40 | 39.77107 | -121.59727 | Building | Urban | Structure Only | Fire Agency | paradise fire city department | 100324902 | PACIFIC BELL | 12,000 | Fuse | Overhead | Yes | 12/12/17 | 4:40 | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1538 | PG&E | 12/13/17 | 12.13 | 35.59220 | -120.64741 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 103390807 | Unknown | 21,000 | Other | Overhead | Yes | 12/13/17 | 12:13 | Equipment/ Facility Failure | Recloser | N.A. | N.A. | Unknown | |
| 1539 | PG&E | 12/14/17 | 1.33 | 37.19789 | -121.83746 | Building | Rural | Structure Only | Fire Agency | Unknown | 100622323 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 12/14/17 | 1:33 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1540 | PG&E | 12/14/17 | 17.16 | 34.58783 | -120.35663 | Vegetation | Rural | 10 - 99 Acres | Fire Agency | Unknown | 101911004 | VERIZON CALIFO | 12,000 | Conductor | Overhead | Yes | 12/14/17 | 17:16 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1541 | PG&E | 12/16/17 | 7.01 | 39.74474 | -122.19612 | Building | Urban | Structure Only | Fire Agency | ORLAND CITY FIRE DEPT | 100428554 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 12/16/17 | 7:01 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1542 | PG&E | 12/16/17 | 11.51 | 38.81706 | -122.70412 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Shawn Ohare | 102167231 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 12/16/17 | 11:51 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1543 | PG&E | 12/16/17 | 13.39 | 37.97022 | -121.64092 | Vegetation | Rural | < 0.25 Acres | Fire Agency | FIRE CAPTAIN ON DUTY | 100473121 | PACIFIC BELL | 0 – 750 | Conductor | Overhead | Yes | 12/16/17 | 13:39 | Equipment/ Facility Failure | Splice/Clamp/Connector | N.A. | N.A. | Unknown | |
| 1544 | PG&E | 12/16/17 | 16.03 | 35.65929 | -120.49459 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 103131190 | Unknown | 21,000 | Conductor | Overhead | Yes | 12/16/17 | 16:03 | Other | N.A. | N.A. | N.A. | Unknown | |
| 1545 | PG&E | 12/19/17 | 7.05 | 36.27152 | -120.39270 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 100745841 | Unknown | 12,000 | Fuse | Overhead | Yes | 12/19/17 | 7:05 | Contact From Object | N.A. | Animal | Electric Facility | Unknown | |
| 1546 | PG&E | 12/19/17 | 16.55 | 35.23093 | -119.59840 | Vegetation | Rural | < 0.25 Acres | Fire Agency | KC FIRE DEPT | 100165540 | Unknown | 21,000 | Conductor | Overhead | Yes | 12/19/17 | 16:55 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1547 | PG&E | 12/19/17 | 19.45 | 40.72710 | -122.32629 | Vegetation | Rural | < 0.25 Acres | Fire Agency | Unknown | 101457738 | Unknown | 0 – 750 | Conductor | Overhead | Yes | 12/19/17 | 19:45 | Equipment/ Facility Failure | Conductor | N.A. | N.A. | Unknown | |
| 1548 | PG&E | 12/20/17 | 07.54 | 37.40115 | -122.36062 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 100318864 | PACIFIC BELL | 12,000 | Conductor | Overhead | Yes | 12/20/17 | 07:54 | Contact From Object | N.A. | Vegetation | Electric Facility | Unknown | |
| 1549 | PG&E | 12/20/17 | 14.03 | 35.66460 | -121.24400 | Vegetation | Rural | .26 - 9.99 Acres | Fire Agency | Cal Fire | 103857828 | Unknown | 12,000 | Fuse | Overhead | No | | | Equipment/ Facility Failure | Insulator | N.A. | N.A. | Unknown | |
| 1550 | PG&E | 12/20/17 | 16.04 | 34.61055 | -120.32180 | Vegetation | Rural | < 3 Meters | Fire Agency | Unknown | 101906902 | VERIZON CALIFO | 12,000 | Fuse | Overhead | Yes | 12/20/17 | 16:04 | Equipment/ Facility Failure | Crossarm | N.A. | N | | |

Exhibit 67



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03/30/18
04:59 PM

A1803015

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Application of Pacific Gas and Electric
Company to Recover Costs Recorded in the
Catastrophic Event Memorandum Account
Pursuant to Public Utilities Code Section
454.9 and Forecasted Pursuant to Resolution
ESRB-4

(U 39 E)

Application No. 18-03-____

APPLICATION OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)

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Dated: March 30, 2018

Attorneys for
PACIFIC GAS AND ELECTRIC COMPANY

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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Application of Pacific Gas and Electric
Company to Recover Costs Recorded in the
Catastrophic Event Memorandum Account
Pursuant to Public Utilities Code Section
454.9 and Forecasted Pursuant to Resolution
ESRB-4

(U 39 E)

Application No. 18-03-____

APPLICATION OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)

Pursuant to Public Utilities Code Section 454.9,^{1/} as well as California Public Utilities Commission (CPUC or Commission) Resolution E-3238,^{2/} CPUC Resolution ESRB-4,^{3/} and Article 2 of the CPUC's Rules of Practice and Procedure, Pacific Gas and Electric Company (PG&E) submits this Application to recover costs recorded in its electric Catastrophic Event Memorandum Account (CEMA) associated with nine catastrophic events (Catastrophic Events). These Catastrophic Events including three fires in 2016, four sets of storms spanning 2016-2017,

1/ Public Utilities Code Section 454.9 states:

- (a) The commission shall authorize public utilities to establish catastrophic event memorandum accounts and to record in those accounts the costs of the following:
 - (1) Restoring utility services to customers.
 - (2) Repairing, replacing, or restoring damaged utility facilities.
 - (3) Complying with governmental agency orders in connection with events declared disasters by competent state or federal authorities.
- (b) The costs, including capital costs, recorded in the accounts set forth in subdivision (a) shall be recoverable in rates following a request by the affected utility, a commission finding of their reasonableness, and approval by the commission. The commission shall hold expedited proceedings in response to utility applications to recover costs associated with catastrophic events.

2/ Resolution E-3238, adopted July 24, 1991, predated the 1994 enactment of Public Utilities Code Section 454.9, and originally authorized the establishment of the CEMA and the requirement to file an application to seek recovery of reasonable costs recorded in the CEMA.

3/ Resolution ESRB-4, adopted June 12, 2014, authorized utilities to recover incremental costs for drought-mitigation efforts through the CEMA after February 18, 2014.

and two years of activities relating to tree mortality and fire risk reduction (one each for 2016 and 2017). This Application also seeks costs on a forecast basis – for the years 2018 and 2019 – for tree mortality and fire risk reduction pursuant to Resolution ESRB-4.

I. INTRODUCTION

During the past five years, the customers in PG&E's service area have experienced unprecedented extremes in weather. These extremes have included both the warmest and driest 5-year period on record, followed by the wettest water year on record for the Northern Sierra. These extremes brought Catastrophic Events in the forms of fires, drought and tree mortality, and storms of exceptional rarity.

In 2016 and 2017, various Catastrophic Events damaged PG&E electric facilities across its service territory and required substantial investments to restore customers' service. In addition, in the case of the ongoing emergency concerning drought and tree mortality, PG&E was required to undertake extraordinary measures to mitigate the risk of fire ignition from, and damage to, its electric distribution facilities. Reflecting the severity of these events, the recorded costs sought in this Application are larger than previously sought by PG&E.

PG&E recorded the costs of responding to these Catastrophic Events in its electric CEMA. In this Application, PG&E requests authorization to recover electric distribution and electric generation expense and capital revenue requirements associated with the following nine Catastrophic Events.^{4/}

- 2016 Tree Mortality and Fire Risk Reduction;
- 2016 Soberanes Fire;
- 2016 Clayton Fire;
- 2016 Chimney Fire;
- 2016 December Severe Storms;
- 2017 Tree Mortality and Fire Risk Reduction;

^{4/} Some of these events include multiple declared emergencies.

- 2017 January Severe Storms (Set 1);
- 2017 January Severe Storms (Set 2); and
- 2017 February Severe Storms.

Additionally, pursuant to Resolution ESRB-4, this Application seeks costs on a forecast basis for these continuing Catastrophic Events:

- 2018 Tree Mortality and Fire Risk Reduction; and
- 2019 Tree Mortality and Fire Risk Reduction.

Only electric distribution and generation costs are included in this Application. No gas costs are being sought. Further, this Application does not seek costs related to the 2015 Butte Fire, nor for the October 2017 Northern California wildfires.

In the prepared testimony and workpapers accompanying this Application, PG&E describes the CEMA-eligible costs incurred in relation to the Catastrophic Events. Consistent with Commission Decision (D.) 07-07-041, PG&E is only seeking recovery of costs for the areas for which an authority declared an emergency (proclaimed or declared emergency areas or counties) — referred to as “CEMA-eligible costs.” Likewise, consistent with the past, PG&E has adjusted its CEMA-eligible costs to exclude employee benefits associated with labor expense and capitalized Administrative and General (A&G) costs charged to capital orders in order to determine the CEMA-eligible “incremental” costs.^{5/}

For the nine historic Catastrophic Events, PG&E seeks to recover revenue requirements associated with \$528.5 million in CEMA-eligible incremental expense and \$114.2 million in CEMA-eligible incremental capital costs. Table 1-1 summarizes the CEMA-eligible incremental expense and capital costs incurred for each of the nine historic Catastrophic Events.

^{5/} Decision 08-01-021.

TABLE 1-1
CEMA-ELIGIBLE INCREMENTAL COSTS
(THOUSANDS OF DOLLARS)

| Line No. | Catastrophic Event | Expense | Capital Expenditures | Revenue Requirement ^(a) |
|----------|---|-----------|----------------------|------------------------------------|
| 1 | 2016 Tree Mortality & Fire Risk Reduction | \$254,309 | — | \$254,309 |
| 2 | 2016 Soberanes Fire | 3,768 | \$1,395 | 4,622 |
| 3 | 2016 Clayton Fire | 4,194 | 3,730 | 5,753 |
| 4 | 2016 Chimney Fire | 300 | 758 | 560 |
| 5 | 2016 December Severe Storms | 1,073 | 570 | 1,334 |
| 6 | 2017 Tree Mortality & Fire Risk Reduction | 140,215 | - | 140,215 |
| 7 | 2017 January Severe Storms (Set 1) | 41,845 | 35,088 | 55,996 |
| 8 | 2017 January Severe Storms (Set 2) | 26,687 | 21,772 | 35,426 |
| 9 | 2017 February Severe Storms | 56,082 | 50,916 | 74,768 |
| 10 | Subtotal - Recorded without Interest | \$528,472 | \$114,228 | \$572,984 |
| 11 | Interest (2016-2018) ^(b) | | | 15,312 |
| 12 | Total Recorded with Interest | | | \$588,296 |

(a) This column shows revenue requirements associated with CEMA-eligible incremental expense and capital costs through December 31, 2019.

(b) Interest beyond 2018 will be calculated based on the final, authorized amount and amortization period.

For forecast 2018 and 2019 tree mortality and fire risk reduction activities, PG&E seeks to recover revenue requirements of \$263.0 million^{6/} and \$291.8 million, respectively. These amounts are proposed to be subject to a two-way balancing account that would be effective starting in January 1, 2018. Table 1-2 summarizes these forecasted costs.

^{6/} The 2018 revenue requirement for forecasted costs includes interest.

TABLE 1-2
CEMA-ELIGIBLE FORECASTED COSTS
(THOUSANDS OF DOLLARS)

| Line No. | Catastrophic Event | Expense | Capital Expenditures | Revenue Requirement ^(a) |
|----------|---|-----------|----------------------|------------------------------------|
| 1 | 2018 Tree Mortality and Fire Risk Reduction | \$260,340 | — | \$260,340 |
| 2 | 2019 Tree Mortality and Fire Risk Reduction | 291,750 | — | 291,750 |
| 3 | Subtotal forecasted without interest | \$552,090 | | \$552,090 |
| 4 | Interest (2018) ^(b) | | | \$2,606 |
| 5 | Total Forecasted with Interest | \$552,090 | — | \$554,696 |

(a) This column shows revenue requirements associated with CEMA-eligible incremental expense costs through December 31, 2019.

(b) Interest beyond 2018 will be calculated based on the final, authorized amount and amortization period.

In total, this Application represents \$1,080.6 million in expense and \$114.2 million in capital costs for the identified Catastrophic Events over the period 2016-2019. These amounts are shown in Table 1-3.

TABLE 1-3
TOTAL COSTS REFLECTED IN THIS APPLICATION
(THOUSANDS OF DOLLARS)

| Line No. | Catastrophic Event-Related Periods | Expense | Capital Expenditures | Revenue Requirement ^(a) |
|----------|------------------------------------|-------------|----------------------|------------------------------------|
| 1 | 2016-2017 Recorded Costs | \$528,472 | \$114,228 | \$588,296 |
| 2 | 2018-2019 Forecasted Costs | 552,090 | - | 554,696 |
| 3 | Total | \$1,080,562 | \$114,228 | \$1,142,992 |

(a) This column shows revenue requirements associated with CEMA-eligible incremental expense and capital costs through December 31, 2019.

The CEMA costs included in this application are greater than in prior years. Overall, the higher revenue requirement included in this application is driven by a number of factors:

- (1) the severity of recent weather events has been unprecedented;
- (2) the scope of this CEMA application covers nine historic events spanning two years;
- (3) the scope also includes forecasted costs for two additional years; and

(4) tree mortality and fire risk reduction costs have been, and continue to be, substantial.

With respect to this last point, tree mortality and fire risk reduction costs comprise approximately 84% percent of the total costs included in this application on a revenue requirement basis.

Unfortunately, PG&E anticipates that tree mortality and fire risk reduction work is likely to continue to be significant for future years as well. The cumulative effects of a 5-year drought and its aftermath continue today, resulting in widespread tree and vegetation mortality. The volume of tree mortality work identified during 2016 was over 10 times greater than that performed in 2015. Recently, in December 2017, the United States Forest Service (USFS) announced that the number of dead trees in California is continuing to grow and placed its estimate at approximately 129 million.^{7/}

PG&E proposes to recover the authorized CEMA expenses and capital costs that have already been incurred over a 2-year period beginning on January 1, 2019, or as soon as possible thereafter, as part of its Annual Electric True-Up (AET) advice filings. With respect to PG&E's forecasted expenses for 2018 and 2019, PG&E proposes to recover the 2018 and 2019 revenue requirements over a 2-year period beginning on January 1, 2019, or as soon as possible thereafter, as part of its AET advice filings.

For authorized CEMA capital costs beyond December 31, 2019, PG&E proposes to roll the authorized CEMA electric distribution capital into the General Rate Case (GRC) rate base for PG&E's next GRC, currently slated for a Test Year 2020. Tables 1-4 and 1-5 summarize PG&E's revenue requirement implementation proposal.

^{7/} US Forest Service, Cal Fire and the Tree Mortality Task Force, Record 129 Million Dead Trees in California (Dec. 11, 2017).

**TABLE 1-4
PG&E'S PROPOSED REVENUE REQUIREMENTS
RECOVERY PERIODS FOR RECORDED COSTS**

| <u>Line No.</u> | <u>Recovery Mechanism</u> | <u>Revenue for Recorded Expense</u> | <u>Revenue for Recorded Capital through December 31, 2019</u> | <u>Revenue for Ongoing Capital starting January 1, 2020</u> |
|-----------------|---------------------------|---|---|---|
| 1 | Annual Electric True-up | Amortize over 2-year Period (2019-2020) | Amortize over 2-year Period (2019-2020). | N/A |
| 2 | 2020 General Rate Case | N/A | N/A | Included in the 2020 GRC rate base |

**TABLE 1-5
PG&E'S PROPOSED REVENUE REQUIREMENTS
RECOVERY PERIODS FOR FORECASTED COSTS**

| <u>Line No.</u> | <u>Recovery Mechanism</u> | <u>Revenue for 2018 Forecasted Expense</u> | <u>Revenue for 2019 Forecasted Expense</u> |
|-----------------|---------------------------|--|--|
| 1 | Annual Electric True-up | Amortize over 2-year Period (2019-2020) | Amortize over 2-year Period (2019-2020) |

Table 1-6 below includes the annual CEMA revenue requirement PG&E proposes to include in the 2019-2020 AET filings:

**TABLE 1-6
PG&E'S PROPOSED REVENUE REQUIREMENT
(MILLIONS OF DOLLARS)**

| <u>Line No.</u> | <u>Functional Area</u> | <u>2019</u> | <u>2020</u> | <u>Total</u> |
|-----------------|------------------------|-------------|-------------|--------------|
| 1 | Electric Distribution | \$561.2 | \$561.2 | \$1,122.4 |
| 2 | Electric Generation | 10.3 | 10.3 | 20.6 |
| 3 | Total | \$571.5 | \$571.5 | \$1,143.0 |

The cost recovery for all revenue requirements associated with approved incremental expense and capital additions through December 31, 2019, will occur over two years through the following rate mechanisms and will be updated annually through the AET advice letter filings:

- Authorized incremental CEMA electric distribution emergency response expense and capital costs – Distribution Revenue Adjustment Mechanism (DRAM);
- Authorized incremental CEMA electric distribution tree mortality and fire risk reduction activities expenses – DRAM;
- Authorized incremental CEMA electric generation tree mortality and fire risk reduction activities expense – Utility Generation Balancing Account;

In the next GRC, PG&E will request CEMA electric distribution capital to be included in GRC rate base for recovery in customer rates through the DRAM.

Rates set to recover CEMA costs will be set in the same manner as rates set to recover other electric distribution and electric generation costs using existing methodologies for revenue allocation and rate design. See Chapters 6 and 7 of the accompanying Testimony for additional detail on PG&E's cost recovery proposal.

II. OVERVIEW OF TESTIMONY

PG&E's CEMA Application is supported by the accompanying prepared testimony.

Chapter 1 of the testimony (Introduction and Policy) provides a summary of PG&E's request, an overview of the other chapters of testimony, background information about the establishment of the CEMA, a description of the CEMA Directives, a discussion of the CPUC independent audit of costs associated with the CEMA Activities, and an explanation of the adjustment of CEMA costs.

Chapter 2 (Electric Distribution Response and Restoration Costs) presents detailed information on Electric Distribution operations emergency recovery work performed after the declared fire and storm emergencies.

Chapter 3 (Tree Mortality and Fire Risk Reduction Activities and Costs) provides

detailed information on work performed to address tree mortality and fire risk reduction activities by both Electric Distribution and Electric Generation operations.

Chapter 4 (Demonstration of Incrementality) describes how the costs included in this application are incremental and not requested through any other rate cases or proceedings.

Chapter 5 (Accounting and Calculations of Catastrophic Event Costs) describes adjustments made to remove non-CEMA-eligible costs from this application.

Chapter 6 (Revenue Requirement) presents PG&E's methodology to determine the revenue requirements for the costs included in this Application.

Chapter 7 (Tree Mortality and Fire Risk Reduction Balancing Account) describes PG&E's proposal for a balancing account to handle certain drought and tree mortality costs.

In addition to these chapters of testimony, PG&E has prepared supporting workpapers for many of these chapters. These workpapers include supporting detail behind PG&E's recorded and forecasted costs. Accordingly, PG&E plans to include these workpapers as part of the evidentiary record for this proceeding.

III. ESTABLISHMENT OF THE CEMA

A. Authorization to Establish the CEMA

In response to the Loma Prieta earthquake that struck northern California in October 1989, the Commission adopted Resolution E-3238, which authorized regulated public utilities to establish CEMAs and to record in those accounts the costs of: "(a) restoring utility service to its customers; (b) repairing, replacing or restoring damaged utility facilities; and (c) complying with government agency orders resulting from declared disasters."^{8/} In addition to direct expenses, Resolution E-3238 authorizes utilities to record "capital related costs such as depreciation and return on capitalized [plant] additions" resulting from the restoration activities into such memorandum accounts.^{9/}

^{8/} Resolution E-3238, p. 1 and p. 5, OP 1.

^{9/} Resolution E-3238, p. 2.

Public Utilities Code Section 454.9 established the statutory authority for public utilities to establish gas and electric CEMAs and to recover any reasonable costs incurred when responding to catastrophic events. Pursuant to Section 454.9, PG&E is allowed to seek cost recovery of costs for “restoring utility service to customers,” “repairing, replacing, or restoring damaged utility facilities,” and “[c]omplying with governmental agency orders in connection with events declared disasters by competent state or federal authorities.”^{10/} Capital-related expenditures result when the utility spends funds on capital projects that are necessary to replace, augment, or support its existing utility plant.

Consistent with this regulatory and statutory authority, PG&E established its CEMAs, Electric Preliminary Statement Part G and Gas Preliminary Statement Part AC, to “recover the costs associated with the restoration of service and PG&E facilities affected by a catastrophic event declared a disaster or state of emergency by competent federal or state authorities.” (As mentioned above, however, only electric distribution and generation costs are included in this application. No gas costs are included.) PG&E’s CEMAs authorize PG&E to record Operations and Maintenance and A&G expenses and capital costs to the CEMA associated with the restoration of service and PG&E facilities affected by a declared disaster.

B. Determination of CEMA-Eligible Costs

PG&E employs the criteria and guidance from Resolution E-3238 and Public Utilities Code Section 454.9 to determine the costs eligible for CEMA recovery.

In determining the eligible costs to be recorded in the CEMA, PG&E reviewed the costs to ensure that these costs were not duplicative of the items included in the revenues requested and authorized in PG&E’s 2017 GRC and other proceedings. Resolution E-3238 authorizes PG&E to record incremental catastrophic event repair and restoration costs as well as costs associated with complying with government orders in connection with declared state and federal disasters in its CEMA. The term “incremental costs” applies to both capital and operating

^{10/} Pub. Util. Code Section 454.9(a).

expenses incurred as a result of the CEMA Events. Incremental costs as used herein are costs that are not funded through existing rates. These costs would not have been incurred “but for” the CEMA Events identified in this application and testimony. Only those costs to restore service, repair or replace damaged facilities, or comply with government orders in connection with the CEMA Events are recorded in the CEMA.

As a standard practice, PG&E’s GRC includes a forecast for work performed in response to “normal” or “major” emergencies, but not for extraordinary or catastrophic storms, fires, or earthquakes. PG&E has not included CEMA events included in this application when developing forecasts for its 2017 GRC. Costs associated with catastrophic events are recovered by filing an application for their recovery via the CEMA process. As a consistent practice for all catastrophic events, PG&E creates separate work orders to track all CEMA Activities costs separately. These accounting practices are described in greater detail in Chapters 2, 3 and 4 of PG&E’s Testimony. Chapter 4 presents additional information about the incremental nature of the CEMA costs presented in this application.

IV. DESCRIPTION OF THE HISTORIC CEMA ACTIVITIES AT ISSUE IN THIS APPLICATION

The following section briefly describes the historic CEMA Activities that are the subject of this CEMA Application. Greater detail about these CEMA Activities is provided in the accompanying prepared Testimony.

A. 2016 Tree Morality and Fire Risk Reduction

In this application, PG&E requests to recover the incremental drought-related activities the Company initiated in 2016 to control and mitigate fire risks.^{11/}

On January 17, 2014, Governor Brown proclaimed a State of Emergency (Drought Emergency Proclamation) directing state officials to take actions to mitigate against conditions that could result from California’s severe drought.

^{11/} Includes costs incurred for drought-related activities identified in 2016 and work executed through July 31, 2017. A. 16-10-019 submitted in November 2016 includes PG&E’s drought-related costs from January 2015 through December 2015.

On February 18, 2014, in response to Governor Brown's Drought Emergency Proclamation, and specifically to the concern regarding the increased risk of fires in both urban and rural areas, CPUC Safety and Enforcement Division (SED) Acting Director, Denise Tyrell sent a letter to PG&E. Among other activities, Acting Director Tyrell directed PG&E to "take all practicable measures necessary to reduce the likelihood of fires started by [its] facilities," which included but was not limited to "increased inspections in fire threat areas, re-prioritization of corrective action items, and modification to protective schemes."

On April 25, 2014, stressing the emergency conditions being presented by the drought, Governor Brown issued the Drought Emergency Proclamation Continuation ordering, among other things, additional water conservation measures to be taken across the state and providing assistance to landowners to meet their responsibilities for removing dead, dying and diseased trees to mitigate against the heightened fire risk.^{12/}

On June 12, 2014, also in response to Governor Brown's Drought Emergency Proclamation, the CPUC approved Resolution ESRB-4, which ordered all California investor-owned utilities (IOU) to "take practicable measures to reduce the likelihood of fires associated with their facilities." In Resolution ESRB-4, OP 4, the CPUC also ordered that, "to the extent that additional funding is reasonable and not already included or recoverable in the Investor owned Electric Utilities accounts, incremental cost recovery through the CEMAs may be sought by the IOUs after the February 18, 2014 letter from SED."

In June 2014, PG&E notified the CPUC of its cost estimate to undertake incremental measures in 2014 to reduce the likelihood of fires associated with or threatening its facilities. In May 2015, PG&E submitted A.15-05-016 requesting recovery of \$26.4 million in incremental expense for PG&E's 2014 Drought Activities. Subsequently, in April 2016, the CPUC issued

^{12/} California Governor Brown's April 25, 2015 State of Emergency Proclamation Continuation for California Drought.

D.16-04-004, approving the settlement between the Office of Ratepayer Advocates (ORA) and PG&E, which authorized recovery of \$26.2 million of PG&E's original \$26.6 million^{13/} request.

As the severe impacts from the drought continued in 2015, Governor Brown, in his May 4, 2015 proclamation declaring wildfire awareness week, stated that "California now faces a threat of wildfire nearly year-round due to drought conditions."

In July 2015, PG&E notified the CPUC of its cost estimate to undertake incremental measures in 2015 to reduce the likelihood of fires associated with or threatening its facilities. In October 2016, PG&E submitted A.16-10-019 requesting recovery of \$146 million in revenue requirement for PG&E's efforts responding to CEMA events, of which \$35 million is for PG&E's 2015 drought-related activities.^{14/}

Due to the record drought conditions, and the resulting bark beetle infestations, California has been experiencing vast tree mortality. In October 2015, Governor Brown issued a Tree Mortality Emergency Proclamation, stating that the vast scale of tree mortality "worsens wild fire risks across large regions of the State." In this proclamation, Governor Brown directed utilities to: "undertake efforts to remove dead or dying trees...that threaten powerlines, roads or other evacuation corridors, critical community infrastructure, and other existing structures. Incidental vegetation such as shrubs that restrict access for safe and efficient removal of dead and dying trees also may be removed."^{15/}

For 2016, in response to the heightened fire risk and in accordance with the authorities outlined above, PG&E had to implement significant measures to mitigate fire risks, such as:

^{13/} The \$26.6 million includes interest, fees and uncollectibles for the \$26.4 million of incremental drought work.

^{14/} PG&E's overall request in A.16-10-019 is \$146 million as updated in its rebuttal testimony. submitted in October 2017. The 2015 drought-related component is \$34.8 million. In addition to the drought response activities, A. 16-10-019 also includes PG&E's response to other declared emergencies, such as fires, storms and earthquake.

^{15/} Governor Brown's Tree Mortality Proclamation, Ordering Paragraph 2.

(1) additional ground and air inspection patrols in high fire risk and fire consequence areas (e.g., State Responsibility Areas and Local Responsibility Areas) to identify and abate dead and dying trees;

(2) funding Fire Safety Councils to support fuel reduction in high fire danger areas around PG&E's electric distribution facilities;

(3) working with third parties to enhance tree mortality detection and funding aerial patrols and fire detection cameras located near PG&E's electric distribution facilities;

(4) information sharing with universities, CAL FIRE, and USFS on forest health;

(5) raising public awareness of fire risk, practices to reduce fire risk, and protection for life and property in the event of a fire; and

(6) management of wood debris.

In addition, many dead and dying trees are located in proximity to PG&E's critical hydroelectrical facilities, posing a threat to those facilities and public recreational areas. PG&E had to remove significantly greater numbers of dead and dying trees located around these hydroelectrical and recreational facilities as a result of the ongoing drought and bark beetle infestation.

Similar to the process undertaken in 2014 and 2015, PG&E sent a letter to Timothy Sullivan, Executive Director of the CPUC on June 29, 2016, to provide a cost estimate of PG&E's efforts in 2016 to implement fire risk mitigation activities and notification of PG&E's implementation of CEMA for PG&E's electric distribution and hydroelectric generation facilities vegetation management protection activities due to drought and bark beetle infestation. PG&E's fire mitigation initiatives are described in greater detail in Chapter 3.

B. 2016 Soberanes Fire

The Soberanes Fire began on July 22, 2016. This fire damaged public and district facilities, including roads and structures, and threatened residences, necessitating evacuations. On July 26, 2016, Acting Governor of California Tim Torlakson issued a State of Emergency proclamation for Monterey County as a result of the fire. The fire rapidly burned tens of

thousands of acres of land, destroyed dozens of homes and structures, and caused power outages and road closures. This fire disrupted electric service to about 2,300 customers across PG&E's service territory and damaged roughly 26 PG&E electric distribution facilities throughout Monterey County.

On September 20, 2016, PG&E submitted a letter to the Commission's Executive Director, Timothy Sullivan, providing notice that costs associated with the repair of damaged electric distribution facilities and restoration of service in Monterey County following the Soberanes Fire were being recorded to the electric CEMA.

C. 2016 Clayton Fire

The Clayton Fire began on August 13, 2016. This fire destroyed homes and businesses, threatened hundreds of additional structures necessitating the evacuation of hundreds of residents, damaged power lines and other critical infrastructure, threatened critical infrastructure, and forced the closure of roadways. On August 15, 2016, California Governor Brown issued a State of Emergency proclamation for Lake County as a result of the fire. This fire disrupted electric service to more than 9,100 customers across PG&E's service territory and damaged more than 160 PG&E electric distribution facilities throughout Lake County.

On September 20, 2016, PG&E submitted a letter to the Commission's Executive Director, Timothy Sullivan, providing notice that costs associated with the repair of damaged electric distribution facilities and restoration of service in Lake County designated in the emergency proclamation following the Clayton Fire were being recorded to the electric CEMA.

D. 2016 Chimney Fire

The Chimney Fire began on August 13, 2016. This fire swept across San Luis Obispo County, destroyed homes and businesses, threatened hundreds of additional structures necessitating the evacuation of hundreds of residents, damaged power lines and other critical infrastructure, threatened critical infrastructure, and forced the closure of roadways. On August 15, 2016, California Governor Brown issued a State of Emergency proclamation for San Luis Obispo County as a result of the fire. This fire disrupted electric service to more than

500 customers across PG&E's service territory and damaged more than 300 PG&E electric distribution facilities throughout San Luis Obispo County.

On September 20, 2016, PG&E submitted a letter to the Commission's Executive Director, Timothy Sullivan, providing notice that costs associated with repair of damaged electric distribution facilities and restoration of service in San Luis Obispo County following the Chimney Fire were being recorded to the electric CEMA.

E. 2016 December Severe Storms

Beginning December 9, 2016, severe storms swept across northern California in the following counties: Del Norte, Humboldt, Mendocino, Shasta, Santa Cruz, and Trinity. On January 23, 2017, California Governor Brown proclaimed a statewide State of Emergency for the above-mentioned counties. The December 2016 storms disrupted electric service to more than 189,000 customers and about 330 PG&E electric distribution facilities.

On February 22, 2017, PG&E submitted a letter to the Commission's Executive Director, Timothy Sullivan, providing notice that costs associated with the repair of damaged electric distribution and electric generation facilities, and restoration of electric distribution service in the proclaimed-emergency counties for the 2016 December Severe Storm were being recorded to the electric CEMA.

F. 2017 Tree Mortality and Fire Risk Reduction

The circumstances and proclamations concerning PG&E's tree mortality and fire risk reduction work are described above in subsection A. Similar to the process undertaken for prior years, PG&E sent a letter to Timothy Sullivan, Executive Director of the CPUC on November 8, 2017 to inform the Commission of PG&E's continued efforts in 2017 to address tree mortality and implement fire risk reduction activities. Additional information on PG&E's fire mitigation initiatives are described in greater detail in Chapter 3.

G. 2017 January Severe Storms Set 1 (January 3 through January 12, 2017)

The first set of January 2017 Severe Storms began on January 3, 2017, and continued through January 12, 2017. Severe storms swept across numerous California counties.^{16/}

On January 23, 2017, California Governor Brown proclaimed a statewide State of Emergency for the below-mentioned counties. The January 3 through 12, 2017 storms disrupted electric service to more than 771,000 customers and damaged more than 3,800 PG&E electric distribution facilities across PG&E's service territory. On February 10, 2017, California Governor Brown issued an Executive Order adding Amador, Mono, and Riverside to the counties already included in the January 23, 2017 emergency proclamation due to the January storms.

On February 22, 2017, PG&E submitted a letter^{17/} to the Commission's Executive Director, Timothy Sullivan, providing notice that costs associated with the repair of damaged electric distribution and electric generation facilities, and restoration of electric distribution service in the proclaimed-emergency counties for the 2017 January Severe Storm were being recorded to the electric CEMA.

H. 2017 January Severe Storms Set 2 (January 18 through January 23, 2017)

The second set of January 2017 Severe Storms began on January 18, 2017, and continued through January 23, 2017. Severe storms swept across many California counties. On March 7, 2017, California Governor Brown issued, as a result of the Atmospheric River storms for the period January 18, 2017 through January 23, 2017, a State of Emergency Proclamation under the California Emergency Services Act and Section 8625 of the California Government Code for

^{16/} These counties are: Alameda, Alpine, Butte, Calaveras, Contra Costa, El Dorado, Fresno, Humboldt, Inyo, Kern, Kings, Lake, Lassen, Los Angeles, Madera, Marin, Mendocino, Merced, Modoc, Monterey, Napa, Nevada, Orange, Placer, Plumas, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Tuolumne, Ventura, Yolo, Yuba, and Del Norte.

^{17/} PG&E's February 22, 2017 CEMA notification letter covers both the December 2016 Severe Storms and the January 2017 Severe Storms Set 1 (January 3 through January 12, 2017).

numerous counties.^{18/} On March 16, 2017, the Federal Emergency Management Agency (FEMA) issued a Major Disaster Declaration (DR-4305) for the California Winter Storms, Flooding and Mudslides for the period January 18 to January 23, 2017. The Atmospheric River storm systems caused significant flash flooding, erosion, and substantial mud and debris flows. The January 18 through 23, 2017 Atmospheric River storms disrupted electric service to more than 671,000 customers and more than 3,500 PG&E electric distribution and electric generation facilities across PG&E's service territory.

On June 9, 2017, PG&E submitted a letter^{19/} to the Commission's Executive Director, Timothy Sullivan, providing notice that costs associated with the repair of damaged electric distribution and electric generation facilities, and restoration of electric distribution service in the proclaimed-emergency counties for the 2017 January Severe Storm were being recorded to the electric CEMA.

I. 2017 February Severe Storms

The 2017 February Severe Storms began on February 1, 2017, and continued through February 23, 2017. The storm systems caused significant flash flooding, erosion, and substantial mud and debris flows. On March 7, 2017, California Governor Brown issued, as a result of the Atmospheric River storms for the period February 1, 2017, through February 23, 2017, a State of Emergency Proclamation under the California Emergency Services Act and section 8625 of the California Government Code for numerous counties.^{20/} On April 1, 2017, the FEMA issued a

^{18/} These counties are: Alameda, Calaveras, Contra Costa, El Dorado, Fresno, Humboldt, Kern, Los Angeles, Marin, Mendocino, Napa, Nevada, Orange, Plumas, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Solano, Sonoma, Tuolumne, Trinity, Ventura, and Yolo.

^{19/} PG&E's June 9, 2017 CEMA notification letter to the CPUC includes notifications of: 2017 January Storms (January 18 through 23, 2017); 2017 February Severe Storms (February 1, 2017 through February 23, 2017); and the Oroville Dam emergency situation.

^{20/} These counties are: Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, El Dorado, Fresno, Glenn, Humboldt, Kern, Kings, Lake, Lassen, Los Angeles, Marin, Mariposa, Mendocino, Merced, Modoc, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tuolumne, Ventura, Yolo, and Yuba .

Major Disaster Declaration (DR-4308) for the Severe Winter Storms, Flooding, and Mudslides for the period February 1 to February 23, 2017. The 2017 February Severe Storms disrupted electric service to more than 964,000 customers and damaged over 5,000 PG&E electric distribution facilities, eight electric generation facilities, and two gas distribution mains across PG&E's service territory.

On June 9, 2017, PG&E submitted a letter^{21/} to the Commission's Executive Director, Timothy Sullivan, providing notice that costs associated with the repair of damaged electric distribution and electric generation facilities, and restoration of electric distribution service in the proclaimed-emergency counties for the 2017 February Severe Storms were being recorded to the electric CEMA.

V. DESCRIPTION OF THE FORECASTED CEMA ACTIVITIES AT ISSUE IN THIS APPLICATION

As discussed above, this Application seeks forecasted costs related to 2018 and 2019 tree mortality and fire risk reduction activities. These activities are described above in response to the 2016 and 2017 tree mortality conditions, conditions which have grown steadily worse.

This is the first time that PG&E has sought CEMA-eligible costs on a forecast, not recorded, basis. PG&E does so due to the unprecedented nature of the tree mortality emergency. Unlike the emergencies that have come before such as earthquakes and winter storms, the tree mortality emergency is ongoing and has been for years. The Governor's October 30, 2015 Tree Mortality Emergency remains in effect. The Commission's Resolution ESRB-4 expects the utilities to continue their response to this emergency.

These forecasted response activities include historical activities undertaken to address tree mortality and fire risk reduction work but also new activities for enhanced vegetation management by clearing fuels near or under distribution power lines in high risk fire districts and securing additional firefighting resources. This fuel reduction work will help reduce fire threats and provide additional access for emergency responders and include the maintenance and

^{21/} *Id.*

creation of fuel breaks. The firefighting resources will assist with responding to wildfire threats, protecting critical infrastructure, and helping utility crews work in high-fire danger areas.

Accordingly, PG&E has forecasted costs to respond to this ongoing emergency in future years and seeks recovery of these costs on a forecasted basis pursuant to Resolution ESRB-4 and Articles 2 and 3 of the Commission's Rules of Practice and Procedure. Greater detail about these forecasted CEMA Activities is provided in the accompanying prepared Testimony.

VI. CPUC AUDIT OF CEMA COSTS

In addition to directing PG&E to reduce the likelihood of fires associated with its facilities, Resolution ESRB-4 also requires that the Commission select an independent auditor to review the costs associated with PG&E's drought-mitigation activities, with the audit costs to be reimbursed by PG&E through rates.^{22/} The Commission may again consider authorizing ORA to perform this audit as an efficient measure, as ORA will likely audit all CEMA Activities as part of its traditional participation in CEMA proceedings.

VII. STATUTORY AND PROCEDURAL REQUIREMENTS

A. Statutory Authority

This Application is made pursuant to Public Utilities Code Section 454.9, Commission Resolution E-3238, and, with respect to the Drought-Related and Tree Mortality Mitigation activities, Commission Resolution ESRB-4.

B. Categorization, Hearings, and Issues to be Considered (Rules 2.1(c), 7.1)

1. Proposed Category

The purpose of this Application is to request authorization to recover costs associated with the CEMA-eligible incremental costs incurred and forecasted in connection with the CEMA Events. PG&E proposes that this Application be categorized as a rate-setting proceeding.

2. Need for Hearing

PG&E anticipates that hearings may be requested by other parties to this proceeding.

^{22/} CPUC Res. ESRB-4, OP 4.

3. Issues to be Considered

The principal issues presented in this Application are:

- a. Whether PG&E's request to recover \$543.1 million revenue requirement for CEMA-eligible incremental expense costs and \$45.2 million revenue requirement associated with the CEMA eligible incremental capital expenditure costs incurred in connection with the nine historic CEMA Events is reasonable.
- b. Whether PG&E's proposal to recover the authorized electric distribution and electric generation CEMA expenses and capital costs over a 2-year period beginning on January 1, 2019, as part of its AET advice filings, or as soon thereafter as possible following a final decision in this proceeding, should be adopted.
- c. Whether PG&E's proposal to recover CEMA electric distribution capital costs beyond December 31, 2019, by rolling the authorized CEMA electric distribution capital into the GRC rate base for PG&E's 2020 GRC should be adopted.
- e. Whether PG&E's proposal to recover \$555 million in revenue requirement for eligible costs pursuant to Resolution ESRB-4 on a forecast basis through a two-way balancing account should be adopted.

C. Proposed Schedule (Rule 2.1(c))

PG&E proposes the following schedule for processing this Application:

| Activity | Proposed Date |
|--|----------------------|
| Application filed and Testimony served | March 30, 2018 |
| Protests or Responses | April 30, 2018 |
| Reply to Protests or Responses | May 10, 2018 |
| Prehearing Conference | May 24, 2018 |
| Intervenor Testimony | July 9, 2018 |
| Settlement Discussions | July 11-13, 2018 |
| Rebuttal Testimony | July 30, 2018 |
| Hearings | August 13-15, 2018 |
| Concurrent Opening Briefs Due | September 3, 2018 |
| Concurrent Reply Briefs Due | September 17, 2018 |
| Proposed Decision Issued | November 2018 |
| Final Decision Issued | December 2018 |

If the Commission or parties are unable to accommodate the above schedule, PG&E would welcome a discussion at the Prehearing Conference regarding possible phases for the proceeding in order to facilitate the timely recovery of at least a portion of PG&E's costs.

D. Legal Name and Principal Place of Business (Rule 2.1(a))

Applicant's legal name is Pacific Gas and Electric Company. Since October 10, 1905, PG&E has been an operating public utility corporation, organized under California law. It is engaged principally in the business of furnishing electric and gas service in northern and central California. Its principal place of business is in San Francisco, California. Its mailing address for this matter is Post Office Box 7442, San Francisco, California 94120.

E. Correspondence and Communications Regarding this Application (Rule 2.1(b))

Communications regarding this Application should be addressed to:

Steven W. Frank
Pacific Gas and Electric Company
Law Department
77 Beale Street, B30A
San Francisco, CA 94105
Telephone: (415) 973-6976
Facsimile: (415) 973-5520
E-mail: steven.frank@pge.com

and

Amara Hayashida
Case Manager
Pacific Gas and Electric Company
Regulatory Affairs
77 Beale Street, B23
San Francisco, CA 94105
Telephone: (415) 973-8935
Facsimile: (415)-973-1448
E-mail: amara.hayashida@pge.com

F. Relevant Safety Considerations (Rule 2.1(c))

In D.16-01-017, the Commission amended Rule 2.1(c) requiring an applicant to identify all relevant safety considerations implicated by an Application to which the assigned

Commissioners and presiding officer could refer to during the proceeding. In order to ensure that safety considerations have received full consideration by parties and the Commission, PG&E's prepared testimony includes specific discussions which detail PG&E's efforts to promote public safety.

Chapter 2 describes PG&E's electric distribution activities to repair electric distribution facilities damaged during catastrophic events and to restore service to customers.

Chapter 3 describes PG&E's vegetation management activities to mitigate impacts of the drought, including reducing the likelihood of fire ignition associated with its facilities.

G. Article of Incorporation (Rule 2.2)

A certified copy of PG&E's Restated Articles of Incorporation, effective April 12, 2004, was filed with the Commission on May 3, 2004, in A.04-05-005. These Articles are incorporated herein by reference.

H. Balance Sheet and Income Statement (Rule 3.2(a)(1))

PG&E's most recent balance sheet and income statement were filed on March 1, 2018, in A.18-03-001 and are incorporated by reference herein.

I. Statement of Presently Effective Rates (Rule 3.2(a)(2))

PG&E's presently effective electric rates are set forth in Exhibit A of this Application..

J. Statement of Proposed Rate Increases (Rule 3.2(a)(3))

The proposed changes in electric revenue are set forth in Exhibit B of this Application.

K. Summary of Earnings (Rules 3.2(a)(5))

A summary of recorded 2016 revenues, expenses, rate cases and rate of return for PG&E's Electric and Gas Departments was filed with the Commission on September 14, 2017, in A.17-09-006 and is incorporated by reference herein.

L. Exhibit List and Statement of Readiness

Attached to this Application are the following exhibits:

Exhibit A: Statement of Presently Effective Rates

Exhibit B: Proposed Changes in Electric Revenue

Exhibit C: Affected Governmental Entities/List of Cities and Counties

PG&E is contemporaneously serving its prepared direct testimony and workpapers on the parties to PG&E's last CEMA application, A.16-10-019, and on the Chief Administrative Law Judge.

PG&E is ready to proceed with this case based on the testimony of the witnesses regarding the facts and data contained in the testimony, workpapers, and exhibits in support of the revenue request set forth in this Application.

M. Most Recent Proxy Statement (Rule 3.2(a)(8))

PG&E's most recent proxy statement, dated April 18, 2017, was filed with the Commission on June 1, 2017, in A.17-06-005, and is incorporated herein by reference.

N. Type of Rate Change Requested (Rule 3.2(a)(10))

The rate change sought in this Application passes through to customers increased costs to the utility of: (1) restoring utility services to customers; (2) repairing, replacing, or restoring damaged utility facilities; and (3) complying with governmental agency orders in connection with events declared disasters by competent state or federal authorities.

O. Service and Notice of Application (Rule 3.2(b-d))

A list of the cities and counties affected by the rate changes resulting from this Application is attached as Exhibit C. The State of California is also a customer of PG&E whose rates would be affected by the proposed revisions. As provided in Rule 3.2(b), a notice describing in general terms the proposed revenue increases and rate changes will be mailed to the officials identified in Exhibit C. The notice will state that a copy of this Application and related attachments will be furnished by PG&E upon written request.

Within twenty days after the filing of this Application, PG&E will publish a notice of the proposed increases in rates in a newspaper of general circulation in each county in its service territory. That notice will state that a copy of this Application and related attachments may be examined at the Commission's offices and such offices of PG&E as specified in the notice. A similar notice will be included in the regular bills mailed to PG&E's customers within 45 days of

the filing date of this Application.

PG&E will e-mail a copy of this Application, as well as a Notice of Availability of the Testimony and workpapers being served concurrently with the Application, to the service list for A.16-10-019, PG&E's 2016 CEMA application.

VIII. CONCLUSION

WHEREFORE, PG&E respectfully requests that the Commission issue a final decision:

1. Approving PG&E's request to recover \$543.1 million in revenue requirement for CEMA-eligible incremental expense and \$45.2 million revenue requirement associated with the CEMA eligible incremental capital expenditures incurred in connection with the nine historic CEMA Events;
2. Adopting PG&E's proposal to recover the authorized electric distribution and electric generation CEMA expenses and capital costs over a 2-year period beginning on January 1, 2019, as part of its AET advice filings, or as soon thereafter as possible following a final decision;
3. Adopting PG&E's proposal to recover CEMA electric distribution capital costs beyond December 31, 2019, by rolling the authorized CEMA electric distribution capital into the GRC rate base for PG&E's 2020 GRC;

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4. Adopting PG&E's proposal to recover \$555 million in revenue requirement for eligible costs pursuant to Resolution ESRB-4 on a forecast basis through a two-way balancing account; and
5. Granting such other and further relief as the Commission deems appropriate.

Respectfully Submitted,

PACIFIC GAS AND ELECTRIC COMPANY

By: /s/ Steven W. Frank
STEVEN W. FRANK

Pacific Gas and Electric Company
77 Beale Street, B30A
San Francisco, CA 94105
Telephone: (415) 973-6976
Facsimile: (415) 973-5520
E-Mail: steven.frank@pge.com

Attorney for
PACIFIC GAS AND ELECTRIC COMPANY

Dated: March 30, 2018

VERIFICATION

I, undersigned, say:

I am an officer of PACIFIC GAS AND ELECTRIC COMPANY, a corporation, and am authorized to make this verification for that reason.

I have read the foregoing “Application Of Pacific Gas And Electric Company” and I am informed and believe the matters therein are true and on that ground I allege that the matters stated therein are true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed at San Francisco, California this 30th day of March, 2018.

/s/ Kevin Dasso

KEVIN DASSO

Vice President, Electric Asset Management

EXHIBIT A

Statement of Presently Effective Rates

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

RESIDENTIAL RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|--|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE E-1 | | | 1 |
| 2 | MINIMUM BILL (\$/MONTH) | \$10.00 | \$10.00 | 2 |
| 3 | ES UNIT DISCOUNT (\$/UNIT/MONTH) | \$1.95 | \$1.95 | 3 |
| 4 | ET UNIT DISCOUNT (\$/UNIT/MONTH) | \$6.52 | \$6.52 | 4 |
| 5 | ES/ET MINIMUM RATE LIMITER (\$/KWH) | \$0.04632 | \$0.04632 | 5 |
| 6 | ENERGY (\$/KWH) | | | 6 |
| 7 | TIER 1 (Baseline Quantity - BQ) | \$0.21169 | \$0.21169 | 7 |
| 8 | TIER 2 > 100% of BQ | \$0.27993 | \$0.27993 | 8 |
| 10 | High User Surcharge (HUS) > 400% of BQ | \$0.43343 | \$0.43343 | 9 |
| 12 | SCHEDULE EL-1 (CARE) | | | 10 |
| 13 | MINIMUM BILL (\$/MONTH) | \$5.00 | \$5.00 | 11 |
| 14 | ENERGY (\$/KWH) | | | 12 |
| 15 | TIER 1 (Baseline Quantity - BQ) | \$0.13453 | \$0.13453 | 13 |
| 16 | TIER 2 > 100% of BQ | \$0.17767 | \$0.17767 | 14 |
| 17 | High User Surcharge (HUS) > 400% of BQ | \$0.27510 | \$0.27510 | 15 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

RESIDENTIAL RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|---------------------------------|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE E-6 / EM-TOU | | | 1 |
| 2 | MINIMUM BILL (\$/MONTH) | \$10.00 | \$10.00 | 2 |
| 3 | E-6 METER CHARGE (\$/MONTH) | \$7.70 | \$7.70 | 3 |
| 4 | ON-PEAK ENERGY (\$/KWH) | | | 4 |
| 5 | TIER 1 (Baseline Quantity - BQ) | \$0.37123 | | 5 |
| 6 | TIER 2 > 100% of BQ | \$0.45704 | | 6 |
| 7 | PART-PEAK ENERGY (\$/KWH) | | | 7 |
| 8 | TIER 1 (Baseline Quantity - BQ) | \$0.25596 | \$0.20035 | 8 |
| 9 | TIER 2 > 100% of BQ | \$0.34177 | \$0.28616 | 9 |
| 10 | OFF-PEAK ENERGY (\$/KWH) | | | 10 |
| 11 | TIER 1 (Baseline Quantity - BQ) | \$0.17918 | \$0.18352 | 11 |
| 12 | TIER 2 > 100% of BQ | \$0.26499 | \$0.26933 | 12 |
| 13 | SCHEDULE EL-6 / EML-TOU | | | 13 |
| 14 | MINIMUM BILL (\$/MONTH) | \$5.00 | \$5.00 | 14 |
| 15 | EL-6 METER CHARGE(\$/MONTH) | \$6.16 | \$6.16 | 15 |
| 16 | ON-PEAK ENERGY (\$/KWH) | | | 16 |
| 17 | TIER 1 (Baseline Quantity - BQ) | \$0.25133 | | 17 |
| 18 | TIER 2 > 100% of BQ | \$0.29680 | | 18 |
| 19 | PART-PEAK ENERGY (\$/KWH) | | | 19 |
| 20 | TIER 1 (Baseline Quantity - BQ) | \$0.16683 | \$0.12607 | 20 |
| 21 | TIER 2 > 100% of BQ | \$0.21230 | \$0.17154 | 21 |
| 22 | OFF-PEAK ENERGY (\$/KWH) | | | 22 |
| 23 | TIER 1 (Baseline Quantity - BQ) | \$0.11055 | \$0.11372 | 23 |
| 24 | TIER 2 > 100% of BQ | \$0.15602 | \$0.15919 | 24 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

RESIDENTIAL RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|------------------------------|---------------------------|---------------------------|-------------|
| | ***** | | | |
| 1 | SCHEDULE EV: RATE A | | | 1 |
| 2 | MINIMUM BILL (\$/MONTH) | \$10.00 | \$10.00 | 2 |
| 3 | ON-PEAK ENERGY (\$/KWH) | \$0.47334 | \$0.32987 | 3 |
| 4 | PART-PEAK ENERGY (\$/KWH) | \$0.25994 | \$0.20417 | 4 |
| 5 | OFF-PEAK ENERGY (\$/KWH) | \$0.12753 | \$0.13046 | 5 |
| | ***** | | | |
| 6 | SCHEDULE EV: RATE B | | | 6 |
| 7 | EV-B METER CHARGE (\$/MONTH) | \$1.50 | \$1.50 | 7 |
| 8 | ON-PEAK ENERGY (\$/KWH) | \$0.46665 | \$0.32274 | 8 |
| 9 | PART-PEAK ENERGY (\$/KWH) | \$0.25659 | \$0.20061 | 9 |
| 10 | OFF-PEAK ENERGY (\$/KWH) | \$0.12705 | \$0.12995 | 10 |
| | ***** | | | |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

SMALL L&P RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|--|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE A-1 | | | 1 |
| 2 | CUSTOMER CHARGE: SINGLE-PHASE (\$/MO.) | \$10.00 | \$10.00 | 2 |
| 3 | CUSTOMER CHARGE: POLYPHASE (\$/MO.) | \$20.00 | \$20.00 | 3 |
| 4 | ENERGY (\$/KWH) | \$0.25386 | \$0.19670 | 4 |
| 5 | SCHEDULE A-1 TOU | | | 5 |
| 6 | CUSTOMER CHARGE: SINGLE-PHASE (\$/MO.) | \$10.00 | \$10.00 | 6 |
| 7 | CUSTOMER CHARGE: POLYPHASE (\$/MO.) | \$20.00 | \$20.00 | 7 |
| 8 | ENERGY (\$/KWH) | | | 8 |
| 9 | ON-PEAK | \$0.26800 | | 9 |
| 10 | PART-PEAK | \$0.24435 | \$0.22622 | 10 |
| 11 | OFF-PEAK ENERGY | \$0.21700 | \$0.20530 | 11 |
| 12 | SCHEDULE A-6 | | | 12 |
| 13 | CUSTOMER CHARGE: SINGLE-PHASE (\$/MO.) | \$10.00 | \$10.00 | 13 |
| 14 | CUSTOMER CHARGE: POLYPHASE (\$/MO.) | \$20.00 | \$20.00 | 14 |
| 15 | METER CHARGE (\$/MONTH) | \$6.12 | \$6.12 | 15 |
| 16 | METER CHARGE - RATE W (\$/MONTH) | \$1.80 | \$1.80 | 16 |
| 17 | METER CHARGE - RATE X (\$/MONTH) | \$6.12 | \$6.12 | 17 |
| 18 | ENERGY (\$/KWH) | | | 18 |
| 19 | ON-PEAK | \$0.56478 | | 19 |
| 20 | PART-PEAK | \$0.26796 | \$0.21389 | 20 |
| 21 | OFF-PEAK ENERGY | \$0.19637 | \$0.19565 | 21 |
| 22 | SCHEDULE A-15 | | | 22 |
| 23 | CUSTOMER CHARGE (\$/MONTH) | \$10.00 | \$10.00 | 23 |
| 24 | FACILITY CHARGE (\$/MONTH) | \$25.00 | \$25.00 | 24 |
| 25 | ENERGY (\$/KWH) | \$0.25386 | \$0.19670 | 25 |
| 26 | SCHEDULE TC-1 | | | 26 |
| 27 | CUSTOMER CHARGE (\$/MONTH) | \$10.00 | \$10.00 | 27 |
| 28 | ENERGY (\$/KWH) | \$0.18945 | \$0.18945 | 28 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

MEDIUM L&P RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|----------------------------------|---------------------------|---------------------------|-------------|
| ***** | | | | |
| 1 | SCHEDULE A-10 | | | 1 |
| 2 | CUSTOMER CHARGE (\$/MONTH) | \$140.00 | \$140.00 | 2 |
| 3 | MAXIMUM DEMAND CHARGE (\$/KW/MO) | | | 3 |
| 4 | SECONDARY VOLTAGE | \$19.52 | \$11.76 | 4 |
| 5 | PRIMARY VOLTAGE | \$18.56 | \$12.07 | 5 |
| 6 | TRANSMISSION VOLTAGE | \$12.92 | \$9.23 | 6 |
| 7 | ENERGY CHARGE (\$/KWH) | | | 7 |
| 8 | SECONDARY VOLTAGE | \$0.16949 | \$0.13075 | 8 |
| 9 | PRIMARY VOLTAGE | \$0.15829 | \$0.12593 | 9 |
| 10 | TRANSMISSION VOLTAGE | \$0.12478 | \$0.10448 | 10 |
| ***** | | | | |
| 11 | SCHEDULE A-10 TOU | | | 11 |
| 12 | CUSTOMER CHARGE (\$/MONTH) | \$140.00 | \$140.00 | 12 |
| 13 | MAXIMUM DEMAND CHARGE (\$/KW/MO) | | | 13 |
| 14 | SECONDARY VOLTAGE | \$19.52 | \$11.76 | 14 |
| 15 | PRIMARY VOLTAGE | \$18.56 | \$12.07 | 15 |
| 16 | TRANSMISSION VOLTAGE | \$12.92 | \$9.23 | 16 |
| 17 | ENERGY CHARGE (\$/KWH) | | | 17 |
| 18 | SECONDARY | | | 18 |
| 19 | ON PEAK | \$0.22337 | | 19 |
| 20 | PARTIAL PEAK | \$0.16824 | \$0.14054 | 20 |
| 21 | OFF-PEAK | \$0.14017 | \$0.12347 | 21 |
| 22 | PRIMARY | | | 22 |
| 23 | ON PEAK | \$0.21022 | | 23 |
| 24 | PARTIAL PEAK | \$0.15966 | \$0.13698 | 24 |
| 25 | OFF-PEAK | \$0.13303 | \$0.12110 | 25 |
| 26 | TRANSMISSION | | | 26 |
| 27 | ON PEAK | \$0.17230 | | 27 |
| 28 | PARTIAL PEAK | \$0.12543 | \$0.11364 | 28 |
| 29 | OFF-PEAK | \$0.10012 | \$0.09906 | 29 |
| ***** | | | | |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

E-19 FIRM RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|----------|---|---------------------------|---------------------------|----------|
| ***** | | | | |
| 1 | SCHEDULE E-19 T FIRM | | | 1 |
| 2 | CUSTOMER CHARGE > 500 KW (\$/MONTH) | \$1,800.00 | \$1,800.00 | 2 |
| 3 | CUSTOMER CHARGE < 500 KW (\$/MONTH) | \$140.00 | \$140.00 | 3 |
| 4 | TOU METER CHARGE - RATES V & X (\$/MONTH) | \$140.00 | \$140.00 | 4 |
| 5 | TOU METER CHARGE - RATE W (\$/MONTH) | \$140.00 | \$140.00 | 5 |
| 6 | DEMAND CHARGE (\$/KW/MONTH) | | | 6 |
| 7 | ON-PEAK | \$14.06 | | 7 |
| 8 | PARTIAL PEAK | \$3.53 | \$0.00 | 8 |
| 9 | MAXIMUM | \$9.56 | \$9.56 | 9 |
| 10 | ENERGY CHARGE (\$/KWH) | | | 10 |
| 11 | ON-PEAK | \$0.11286 | | 11 |
| 12 | PARTIAL-PEAK | \$0.09859 | \$0.10083 | 12 |
| 13 | OFF-PEAK | \$0.07970 | \$0.08632 | 13 |
| ***** | | | | |
| 14 | SCHEDULE E-19 P FIRM | | | 14 |
| 15 | CUSTOMER CHARGE > 500 KW (\$/MONTH) | \$1,000.00 | \$1,000.00 | 15 |
| 16 | CUSTOMER CHARGE < 500 KW (\$/MONTH) | \$140.00 | \$140.00 | 16 |
| 17 | TOU METER CHARGE - RATES V & X (\$/MONTH) | \$140.00 | \$140.00 | 17 |
| 18 | TOU METER CHARGE - RATE W (\$/MONTH) | \$140.00 | \$140.00 | 18 |
| 19 | DEMAND CHARGE (\$/KW/MONTH) | | | 19 |
| 20 | ON-PEAK | \$17.49 | | 20 |
| 21 | PARTIAL PEAK | \$4.72 | \$0.14 | 21 |
| 22 | MAXIMUM | \$14.70 | \$14.70 | 22 |
| 23 | ENERGY CHARGE (\$/KWH) | | | 23 |
| 24 | ON-PEAK | \$0.14944 | | 24 |
| 25 | PARTIAL-PEAK | \$0.10739 | \$0.10171 | 25 |
| 26 | OFF-PEAK | \$0.08036 | \$0.08704 | 26 |
| ***** | | | | |
| 27 | SCHEDULE E-19 S FIRM | | | 27 |
| 28 | CUSTOMER CHARGE > 500 KW (\$/MONTH) | \$600.00 | \$600.00 | 28 |
| 29 | CUSTOMER CHARGE < 500 KW (\$/MONTH) | \$140.00 | \$140.00 | 29 |
| 30 | TOU METER CHARGE - RATES V & X (\$/MONTH) | \$140.00 | \$140.00 | 30 |
| 31 | TOU METER CHARGE - RATE W (\$/MONTH) | \$140.00 | \$140.00 | 31 |
| 32 | DEMAND CHARGE (\$/KW/MONTH) | | | 32 |
| 33 | ON-PEAK | \$19.65 | | 33 |
| 34 | PARTIAL PEAK | \$5.40 | \$0.12 | 34 |
| 35 | MAXIMUM | \$17.74 | \$17.74 | 35 |
| 36 | ENERGY CHARGE (\$/KWH) | | | 36 |
| 37 | ON-PEAK | \$0.16055 | | 37 |
| 38 | PARTIAL-PEAK | \$0.11613 | \$0.11004 | 38 |
| 39 | OFF-PEAK | \$0.08671 | \$0.09401 | 39 |
| ***** | | | | |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

E-20 FIRM RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|---------------------------------|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE E-20 T FIRM | | | 1 |
| 2 | CUSTOMER CHARGE (\$/MONTH)-FIRM | \$2,000.00 | \$2,000.00 | 2 |
| 3 | DEMAND CHARGE (\$/KW/MONTH) | | | 3 |
| 4 | ON-PEAK | \$17.42 | | 4 |
| 5 | PARTIAL PEAK | \$4.15 | \$0.00 | 5 |
| 6 | MAXIMUM | \$9.07 | \$9.07 | 6 |
| 7 | ENERGY CHARGE (\$/KWH) | | | 7 |
| 8 | ON-PEAK | \$0.10502 | | 8 |
| 9 | PARTIAL-PEAK | \$0.09161 | \$0.09372 | 9 |
| 10 | OFF-PEAK | \$0.07386 | \$0.08008 | 10 |
| ***** | | | | |
| 11 | SCHEDULE E-20 P FIRM | | | 11 |
| 12 | CUSTOMER CHARGE (\$/MONTH) | \$1,500.00 | \$1,500.00 | 12 |
| 13 | DEMAND CHARGE (\$/KW/MONTH) | | | 13 |
| 14 | ON-PEAK | \$20.34 | | 14 |
| 15 | PARTIAL PEAK | \$5.36 | \$0.12 | 15 |
| 16 | MAXIMUM | \$15.61 | \$15.61 | 16 |
| 17 | ENERGY CHARGE (\$/KWH) | | | 17 |
| 18 | ON-PEAK | \$0.15199 | | 18 |
| 19 | PARTIAL-PEAK | \$0.10749 | \$0.10163 | 19 |
| 20 | OFF-PEAK | \$0.08012 | \$0.08684 | 20 |
| ***** | | | | |
| 21 | SCHEDULE E-20 S FIRM | | | 21 |
| 22 | CUSTOMER CHARGE (\$/MONTH) | \$1,200.00 | \$1,200.00 | 22 |
| 23 | DEMAND CHARGE (\$/KW/MONTH) | | | 23 |
| 24 | ON-PEAK | \$19.02 | | 24 |
| 25 | PARTIAL PEAK | \$5.23 | \$0.05 | 25 |
| 26 | MAXIMUM | \$17.87 | \$17.87 | 26 |
| 27 | ENERGY CHARGE (\$/KWH) | | | 27 |
| 28 | ON-PEAK | \$0.15018 | | 28 |
| 29 | PARTIAL-PEAK | \$0.10981 | \$0.10395 | 29 |
| 30 | OFF-PEAK | \$0.08210 | \$0.08893 | 30 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

OIL AND GAS EXTRACTION RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|--------------------------------------|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE E-37 | | | 1 |
| 2 | CUSTOMER CHARGE (\$/MONTH) | \$36.36 | \$36.36 | 2 |
| 3 | TOU METER CHARGE - RATE W (\$/MONTH) | \$1.20 | \$1.20 | 3 |
| 4 | TOU METER CHARGE - RATE X (\$/MONTH) | \$6.00 | \$6.00 | 4 |
| 5 | ON PEAK DEMAND CHARGE (\$/KW/MO) | \$10.23 | | 5 |
| 6 | MAXIMUM DEMAND CHARGE (\$/KW/MO) | | | 6 |
| 7 | SECONDARY VOLTAGE | \$15.41 | \$5.75 | 7 |
| 8 | PRIMARY VOLTAGE DISCOUNT | \$1.84 | \$0.17 | 8 |
| 9 | TRANSMISSION VOLTAGE DISCOUNT | \$11.41 | \$4.94 | 9 |
| 10 | ENERGY (\$/KWH) | | | 10 |
| 11 | ON-PEAK | \$0.22184 | | 11 |
| 12 | PART-PEAK | | \$0.11743 | 12 |
| 13 | OFF-PEAK | \$0.09543 | \$0.08633 | 13 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

STANDBY RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|--|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE S - TRANSMISSION | | | 1 |
| 2 | CONTRACT CAPACITY CHARGE (\$/KW/MO.) | \$1.68 | \$1.68 | 2 |
| 3 | EFFECTIVE RESERVATION CHARGE (\$/KW/MO.) | \$1.43 | \$1.43 | 3 |
| 4 | ENERGY (\$/KWH) | | | 4 |
| 5 | ON-PEAK | \$0.13635 | | 5 |
| 6 | PART-PEAK | \$0.12192 | \$0.12419 | 6 |
| 7 | OFF-PEAK | \$0.10284 | \$0.10954 | 7 |
| 8 | SCHEDULE S - PRIMARY | | | 8 |
| 9 | CONTRACT CAPACITY CHARGE (\$/KW/MO.) | \$7.17 | \$7.17 | 9 |
| 10 | EFFECTIVE RESERVATION CHARGE (\$/KW/MO.) | \$6.09 | \$6.09 | 10 |
| 11 | ENERGY (\$/KWH) | | | 11 |
| 12 | ON-PEAK | \$0.57195 | | 12 |
| 13 | PART-PEAK | \$0.27208 | \$0.14968 | 13 |
| 14 | OFF-PEAK | \$0.11934 | \$0.12723 | 14 |
| 15 | SCHEDULE S - SECONDARY | | | 15 |
| 16 | CONTRACT CAPACITY CHARGE (\$/KW/MO.) | \$7.17 | \$7.17 | 16 |
| 17 | EFFECTIVE RESERVATION CHARGE (\$/KW/MO.) | \$6.09 | \$6.09 | 17 |
| 18 | ENERGY (\$/KWH) | | | 18 |
| 19 | ON-PEAK | \$0.57093 | | 19 |
| 20 | PART-PEAK | \$0.27106 | \$0.14866 | 20 |
| 21 | OFF-PEAK | \$0.11832 | \$0.12621 | 21 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

STANDBY RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|---|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE S CUSTOMER AND METER CHARGES | | | 1 |
| 2 | RESIDENTIAL | | | 2 |
| 3 | CUSTOMER CHARGE (\$/MO) | \$5.00 | \$5.00 | 3 |
| 4 | TOU METER CHARGE (\$/MO) | \$3.90 | \$3.90 | 4 |
| 5 | AGRICULTURAL | | | 5 |
| 6 | CUSTOMER CHARGE (\$/MO) | \$27.60 | \$27.60 | 6 |
| 7 | TOU METER CHARGE (\$/MO) | \$6.00 | \$6.00 | 7 |
| 8 | SMALL LIGHT AND POWER (less than or equal to 50 kW) | | | 8 |
| 9 | SINGLE PHASE CUSTOMER CHARGE (\$/MO) | \$20.00 | \$20.00 | 9 |
| 10 | POLY PHASE CUSTOMER CHARGE (\$/MO) | \$30.00 | \$30.00 | 10 |
| 11 | METER CHARGE (\$/MO) | \$6.12 | \$6.12 | 11 |
| 12 | MEDIUM LIGHT AND POWER (>50 kW, <500 kW) | | | 12 |
| 13 | CUSTOMER CHARGE (\$/MO) | \$140.00 | \$140.00 | 13 |
| 14 | METER CHARGE (\$/MO) | \$5.40 | \$5.40 | 14 |
| 15 | MEDIUM LIGHT AND POWER (>500kW) | | | 15 |
| 16 | TRANSMISSION CUSTOMER CHARGE (\$/MO) | \$1,800.00 | \$1,800.00 | 16 |
| 17 | PRIMARY CUSTOMER CHARGE (\$/MO) | \$1,000.00 | \$1,000.00 | 17 |
| 18 | SECONDARY CUSTOMER CHARGE (\$/MO) | \$600.00 | \$600.00 | 18 |
| 19 | LARGE LIGHT AND POWER (> 1000 kW) | | | 19 |
| 20 | TRANSMISSION CUSTOMER CHARGE (\$/MO) | \$2,000.00 | \$2,000.00 | 20 |
| 21 | PRIMARY CUSTOMER CHARGE (\$/MO) | \$1,500.00 | \$1,500.00 | 21 |
| 22 | SECONDARY CUSTOMER CHARGE (\$/MO) | \$1,200.00 | \$1,200.00 | 22 |
| 23 | REDUCED CUSTOMER CHARGES (\$/MO) | | | 23 |
| 24 | SMALL LIGHT AND PWR (< 50 kW) | \$7.75 | \$7.75 | 24 |
| 25 | MED LIGHT AND PWR (Res Capacity >75 kW and <500 kW) S | \$52.00 | \$52.00 | 25 |
| 26 | MED LIGHT AND PWR (Res Capacity > 500 kW and < 1000 kW) S | \$177.39 | \$177.39 | 26 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

AGRICULTURAL RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|----------|--|---------------------------|---------------------------|----------|
| 1 | SCHEDULE AG-1A | | | 1 |
| 2 | CUSTOMER CHARGE (\$/MONTH) | \$17.47 | \$17.47 | 2 |
| 3 | CONNECTED LOAD CHARGE (\$/KW/MONTH) | \$7.84 | \$1.46 | 3 |
| 4 | ENERGY CHARGE (\$/KWH) | \$0.28270 | \$0.21839 | 4 |
| 5 | SCHEDULE AG-RA | | | 5 |
| 6 | CUSTOMER CHARGE - RATES A & D (\$/MONTH) | \$17.47 | \$17.47 | 6 |
| 7 | METER CHARGE - RATE A (\$/MONTH) | \$6.80 | \$6.80 | 7 |
| 8 | METER CHARGE - RATE D (\$/MONTH) | \$2.00 | \$2.00 | 8 |
| 9 | CONNECTED LOAD CHARGE (\$/KW/MONTH) | \$6.99 | \$1.12 | 9 |
| 10 | ENERGY (\$/KWH) | | | 10 |
| 11 | ON-PEAK | \$0.54358 | | 11 |
| 12 | PART-PEAK | | \$0.19216 | 12 |
| 13 | OFF-PEAK | \$0.18776 | \$0.15835 | 13 |
| 14 | SCHEDULE AG-VA | | | 14 |
| 15 | CUSTOMER CHARGE - RATES A & D (\$/MONTH) | \$17.47 | \$17.47 | 15 |
| 16 | METER CHARGE - RATE A (\$/MONTH) | \$6.80 | \$6.80 | 16 |
| 17 | METER CHARGE - RATE D (\$/MONTH) | \$2.00 | \$2.00 | 17 |
| 18 | CONNECTED LOAD CHARGE (\$/KW/MONTH) | \$7.02 | \$1.16 | 18 |
| 19 | ENERGY (\$/KWH) | | | 19 |
| 20 | ON-PEAK | \$0.50573 | | 20 |
| 21 | PART-PEAK | | \$0.19314 | 21 |
| 22 | OFF-PEAK | \$0.18434 | \$0.15867 | 22 |
| 23 | SCHEDULE AG-4A | | | 23 |
| 24 | CUSTOMER CHARGE - RATES A & D (\$/MONTH) | \$17.47 | \$17.47 | 24 |
| 25 | METER CHARGE - RATE A (\$/MONTH) | \$6.80 | \$6.80 | 25 |
| 26 | METER CHARGE - RATE D (\$/MONTH) | \$2.00 | \$2.00 | 26 |
| 27 | CONNECTED LOAD CHARGE (\$/KW/MONTH) | \$8.02 | \$1.18 | 27 |
| 28 | ENERGY (\$/KWH) | | | 28 |
| 29 | ON-PEAK | \$0.45041 | | 29 |
| 30 | PART-PEAK | | \$0.20472 | 30 |
| 31 | OFF-PEAK | \$0.19766 | \$0.16644 | 31 |
| 32 | SCHEDULE AG-5A | | | 32 |
| 33 | CUSTOMER CHARGE - RATES A & D (\$/MONTH) | \$17.47 | \$17.47 | 33 |
| 34 | METER CHARGE - RATE A (\$/MONTH) | \$6.80 | \$6.80 | 34 |
| 35 | METER CHARGE - RATE D (\$/MONTH) | \$2.00 | \$2.00 | 35 |
| 36 | CONNECTED LOAD CHARGE (\$/KW/MONTH) | \$11.82 | \$2.11 | 36 |
| 37 | ENERGY (\$/KWH) | | | 37 |
| 38 | ON-PEAK | \$0.31641 | | 38 |
| 39 | PART-PEAK | | \$0.17058 | 39 |
| 40 | OFF-PEAK | \$0.16211 | \$0.14462 | 40 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018
AGRICULTURAL RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|--|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE AG-1B | | | 1 |
| 2 | CUSTOMER CHARGE (\$/MONTH) | \$23.23 | \$23.23 | 2 |
| 3 | MAXIMUM DEMAND CHARGE (\$/KW/MONTH) | | | 3 |
| 4 | SECONDARY VOLTAGE | \$11.50 | \$2.26 | 4 |
| 5 | PRIMARY VOLTAGE DISCOUNT | \$1.27 | \$0.31 | 5 |
| 6 | ENERGY CHARGE (\$/KWH) | \$0.24444 | \$0.19035 | 6 |
| 7 | SCHEDULE AG-RB | | | 7 |
| 8 | CUSTOMER CHARGE - RATES B & E (\$/MONTH) | \$23.23 | \$23.23 | 8 |
| 9 | METER CHARGE - RATE B (\$/MONTH) | \$6.00 | \$6.00 | 9 |
| 10 | METER CHARGE - RATE E (\$/MONTH) | \$1.20 | \$1.20 | 10 |
| 11 | ON-PEAK DEMAND CHARGE (\$/KW/MONTH) | \$3.84 | | 11 |
| 12 | MAXIMUM DEMAND CHARGE (\$/KW/MONTH) | | | 12 |
| 13 | SECONDARY VOLTAGE | \$9.51 | \$1.86 | 13 |
| 14 | PRIMARY VOLTAGE DISCOUNT | \$0.86 | \$0.30 | 14 |
| 15 | ENERGY CHARGE (\$/KWH) | | | 15 |
| 16 | ON-PEAK | \$0.49019 | | 16 |
| 17 | PART-PEAK | | \$0.16689 | 17 |
| 18 | OFF-PEAK | \$0.17792 | \$0.13837 | 18 |
| 19 | SCHEDULE AG-VB | | | 19 |
| 20 | CUSTOMER CHARGE - RATES B & E (\$/MONTH) | \$23.23 | \$23.23 | 20 |
| 21 | METER CHARGE - RATE B (\$/MONTH) | \$6.00 | \$6.00 | 21 |
| 22 | METER CHARGE - RATE E (\$/MONTH) | \$1.20 | \$1.20 | 22 |
| 23 | ON-PEAK DEMAND CHARGE (\$/KW/MONTH) | \$3.83 | | 23 |
| 24 | MAXIMUM DEMAND CHARGE (\$/KW/MONTH) | | | 24 |
| 25 | SECONDARY VOLTAGE | \$9.55 | \$1.84 | 25 |
| 26 | PRIMARY VOLTAGE DISCOUNT | \$0.92 | \$0.29 | 26 |
| 27 | ENERGY CHARGE (\$/KWH) | | | 27 |
| 28 | ON-PEAK | \$0.45343 | | 28 |
| 29 | PART-PEAK | | \$0.16437 | 29 |
| 30 | OFF-PEAK | \$0.17300 | \$0.13677 | 30 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

AGRICULTURAL RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|--|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE AG-4B | | | 1 |
| 2 | CUSTOMER CHARGE - RATES B & E (\$/MONTH) | \$23.23 | \$23.23 | 2 |
| 3 | METER CHARGE - RATE B (\$/MONTH) | \$6.00 | \$6.00 | 3 |
| 4 | METER CHARGE - RATE E (\$/MONTH) | \$1.20 | \$1.20 | 4 |
| 5 | ON-PEAK DEMAND CHARGE (\$/KW/MONTH) | \$5.33 | | 5 |
| 6 | MAXIMUM DEMAND CHARGE (\$/KW/MONTH) | | | 6 |
| 7 | SECONDARY VOLTAGE | \$9.79 | \$2.19 | 7 |
| 8 | PRIMARY VOLTAGE DISCOUNT | \$1.08 | \$0.34 | 8 |
| 9 | ENERGY CHARGE (\$/KWH) | | | 9 |
| 10 | ON-PEAK | \$0.29802 | | 10 |
| 11 | PART-PEAK | | \$0.16188 | 11 |
| 12 | OFF-PEAK | \$0.16173 | \$0.13657 | 12 |
| 13 | SCHEDULE AG-4C | | | 13 |
| 14 | CUSTOMER CHARGE - RATES C & F (\$/MONTH) | \$65.44 | \$65.44 | 14 |
| 15 | METER CHARGE - RATE C (\$/MONTH) | \$6.00 | \$6.00 | 15 |
| 16 | METER CHARGE - RATE F (\$/MONTH) | \$1.20 | \$1.20 | 16 |
| 17 | DEMAND CHARGE (\$/KW/MONTH) | | | 17 |
| 18 | ON-PEAK | \$12.46 | | 18 |
| 19 | PART-PEAK | \$2.36 | \$0.52 | 19 |
| 20 | MAXIMUM | \$4.77 | \$2.30 | 20 |
| 21 | PRIMARY VOLTAGE DISCOUNT | | | 21 |
| 22 | ON-PEAK | \$1.43 | | 22 |
| 23 | MAXIMUM | | \$0.29 | 23 |
| 24 | TRANSMISSION VOLTAGE DISCOUNT | | | 24 |
| 25 | ON-PEAK | \$6.34 | | 25 |
| 26 | PART-PEAK | \$1.24 | \$0.52 | 26 |
| 27 | MAXIMUM | \$0.23 | \$1.60 | 27 |
| 28 | ENERGY CHARGE (\$/KWH) | | | 28 |
| 29 | ON-PEAK | \$0.27624 | | 29 |
| 30 | PART-PEAK | \$0.16255 | \$0.13567 | 30 |
| 31 | OFF-PEAK | \$0.12270 | \$0.11797 | 31 |
| 32 | SCHEDULE AG-5B | | | 32 |
| 33 | CUSTOMER CHARGE - RATES B & E (\$/MONTH) | \$36.36 | \$36.36 | 33 |
| 34 | METER CHARGE - RATE B (\$/MONTH) | \$6.00 | \$6.00 | 34 |
| 35 | METER CHARGE - RATE E (\$/MONTH) | \$1.20 | \$1.20 | 35 |
| 36 | ON-PEAK DEMAND CHARGE (\$/KW/MONTH) | \$10.23 | | 36 |
| 37 | MAXIMUM DEMAND CHARGE (\$/KW/MONTH) | | | 37 |
| 38 | SECONDARY VOLTAGE | \$15.41 | \$5.75 | 38 |
| 39 | PRIMARY VOLTAGE DISCOUNT | \$1.84 | \$0.17 | 39 |
| 40 | TRANSMISSION VOLTAGE DISCOUNT | \$11.41 | \$4.94 | 40 |
| 41 | ENERGY CHARGE (\$/KWH) | | | 41 |
| 42 | ON-PEAK | \$0.22184 | | 42 |
| 43 | PART-PEAK | | \$0.11743 | 43 |
| 44 | OFF-PEAK | \$0.09543 | \$0.08633 | 44 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

AGRICULTURAL RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|--|---------------------------|---------------------------|-------------|
| 1 | SCHEDULE AG-5C | | | 1 |
| 2 | CUSTOMER CHARGE - RATES C & F (\$/MONTH) | \$161.58 | \$161.58 | 2 |
| 3 | METER CHARGE - RATE C (\$/MONTH) | \$6.00 | \$6.00 | 3 |
| 4 | METER CHARGE - RATE F (\$/MONTH) | \$1.20 | \$1.20 | 4 |
| 5 | DEMAND CHARGE (\$/KW/MONTH) | | | 5 |
| 6 | ON-PEAK | \$17.43 | | 6 |
| 7 | PART-PEAK | \$3.59 | \$0.85 | 7 |
| 8 | MAXIMUM | \$5.74 | \$3.58 | 8 |
| 9 | PRIMARY VOLTAGE DISCOUNT | | | 9 |
| 10 | ON-PEAK | \$2.69 | | 10 |
| 11 | MAXIMUM | | \$0.24 | 11 |
| 12 | TRANSMISSION VOLTAGE DISCOUNT | | | 12 |
| 13 | ON-PEAK | \$10.48 | | 13 |
| 14 | PART-PEAK | \$1.46 | \$0.85 | 14 |
| 15 | MAXIMUM | \$3.26 | \$2.34 | 15 |
| 16 | ENERGY CHARGE (\$/KWH) | | | 16 |
| 17 | ON-PEAK | \$0.17333 | | 17 |
| 18 | PART-PEAK | \$0.11762 | \$0.10309 | 18 |
| 19 | OFF-PEAK | \$0.09688 | \$0.09367 | 19 |
| 20 | SCHEDULE AG-ICE | | | 20 |
| 21 | CUSTOMER CHARGE (\$/MONTH) | \$40.00 | \$40.00 | 21 |
| 22 | METER CHARGE (\$/MONTH) | \$6.00 | \$6.00 | 22 |
| 23 | ON-PEAK DEMAND CHARGE (\$/KW/MO) | \$6.95 | | 23 |
| 24 | MAXIMUM DEMAND CHARGE (\$/KW/MO) | | | 24 |
| 25 | SECONDARY | \$8.99 | \$0.00 | 25 |
| 26 | PRIMARY | \$7.85 | \$0.00 | 26 |
| 27 | TRANSMISSION | \$2.74 | \$0.00 | 27 |
| 28 | ENERGY CHARGE (\$/KWH) | | | 28 |
| 29 | ON-PEAK | \$0.18415 | | 29 |
| 30 | PART-PEAK | \$0.14364 | \$0.14732 | 30 |
| 31 | OFF-PEAK | \$0.07366 | \$0.07366 | 31 |

PACIFIC GAS AND ELECTRIC COMPANY
PRESENT ELECTRIC RATES as of
Thursday, March 01, 2018

STREETLIGHTING RATES

| LINE NO. | | 3/1/18 RATES SUMMER | 3/1/18 RATES WINTER | LINE NO. |
|-------------|-------------------------------|---------------------------|---------------------------|-------------|
| ***** | | | | |
| 1 | SCHEDULE LS-1 | | | 1 |
| 2 | ENERGY CHARGE (\$/KWH) | \$0.16451 | \$0.16451 | 2 |
| ***** | | | | |
| 3 | SCHEDULE LS-2 | | | 3 |
| 4 | ENERGY CHARGE (\$/KWH) | \$0.16451 | \$0.16451 | 4 |
| ***** | | | | |
| 5 | SCHEDULE LS-3 | | | 5 |
| 6 | SERVICE CHARGE (\$/METER/MO.) | \$6.00 | \$6.00 | 6 |
| 7 | ENERGY CHARGE (\$/KWH) | \$0.16451 | \$0.16451 | 7 |
| ***** | | | | |
| 8 | SCHEDULE OL-1 | | | 8 |
| 9 | ENERGY CHARGE (\$/KWH) | \$0.17122 | \$0.17122 | 9 |
| ***** | | | | |

| | | | | | | | | | | | | | | |
|---|----------------|---------|--|------------------------------------|----------|---------------|----------|----------|----------|----------|----------|----------|---------|----------------|
| Pacific Gas & Electric Company | | | | | | | | | | | | | | |
| 3/1/18 Rate Change - AET, ERRR, ResReform, TO19,RS&TACBAA | | | | | | | | | | | | | | |
| 3/1/2018 | | | | | | | | | | | | | | |
| ELECTRIC RATES FOR SCHEDULES LS-1, LS-2 AND OL-1 | | | | | | | | | | | | | | |
| NOMINAL LAMP RATINGS | | | | ALL NIGHT RATES PER LAMP PER MONTH | | | | | | | | | | HALF-HOUR ADJ. |
| LAMP | AVERAGE | INITIAL | | SCHEDULE LS-2 | | SCHEDULE LS-1 | | | | | | OL-1 | LS-1 & | |
| WATTS | kWhr PER MONTH | LUMENS | | A | C | A | B | C | D | E | F | | LS-2 | OL-1 |
| MERCURY VAPOR LAMPS | | | | | | | | | | | | | | |
| 40 | 18 | 1,300 | | \$3.168 | -- | -- | -- | -- | -- | -- | -- | -- | \$0.135 | -- |
| 50 | 22 | 1,650 | | \$3.826 | -- | -- | -- | -- | -- | -- | -- | -- | \$0.165 | -- |
| 100 | 40 | 3,500 | | \$6.787 | \$10.574 | \$13.094 | -- | \$13.362 | \$16.303 | -- | \$14.447 | -- | \$0.299 | -- |
| 175 | 68 | 7,500 | | \$11.394 | \$15.181 | \$17.701 | \$17.701 | \$17.969 | \$20.910 | \$21.665 | \$19.054 | \$18.157 | \$0.509 | \$0.529 |
| 250 | 97 | 11,000 | | \$16.164 | \$19.951 | \$22.471 | \$22.471 | \$22.739 | -- | -- | \$23.824 | -- | \$0.725 | -- |
| 400 | 152 | 21,000 | | \$25.213 | \$29.000 | \$31.520 | \$31.520 | \$31.788 | -- | -- | -- | \$32.539 | \$1.137 | \$1.183 |
| 700 | 266 | 37,000 | | \$43.967 | \$47.754 | \$50.274 | \$50.274 | \$50.542 | -- | -- | -- | -- | \$1.989 | -- |
| 1,000 | 377 | 57,000 | | \$62.227 | \$66.014 | -- | -- | -- | -- | -- | -- | -- | \$2.819 | -- |
| INCANDESCENT LAMPS | | | | | | | | | | | | | | |
| 58 | 20 | 600 | | \$3.497 | -- | \$9.804 | -- | -- | \$13.013 | -- | \$11.157 | -- | \$0.150 | -- |
| 92 | 31 | 1,000 | | \$5.307 | \$9.094 | \$11.614 | -- | -- | -- | -- | -- | -- | \$0.232 | -- |
| 189 | 65 | 2,500 | | \$10.900 | \$14.687 | \$17.207 | \$17.207 | -- | -- | -- | -- | -- | \$0.486 | -- |
| 295 | 101 | 4,000 | | \$16.823 | \$20.610 | \$23.130 | \$23.130 | -- | -- | -- | -- | -- | \$0.755 | -- |
| 405 | 139 | 6,000 | | \$23.074 | \$26.861 | \$29.381 | -- | -- | -- | -- | -- | -- | \$1.039 | -- |
| 620 | 212 | 10,000 | | \$35.083 | \$38.870 | -- | -- | -- | -- | -- | -- | -- | \$1.585 | -- |
| 860 | 294 | 15,000 | | \$48.573 | -- | -- | -- | -- | -- | -- | -- | -- | \$2.198 | -- |
| LOW PRESSURE SODIUM VAPOR LAMPS | | | | | | | | | | | | | | |
| 35 | 21 | 4,800 | | \$3.662 | -- | -- | -- | -- | -- | -- | -- | -- | \$0.157 | -- |
| 55 | 29 | 8,000 | | \$4.978 | -- | -- | -- | -- | -- | -- | -- | -- | \$0.217 | -- |
| 90 | 45 | 13,500 | | \$7.610 | -- | -- | -- | -- | -- | -- | -- | -- | \$0.337 | -- |
| 135 | 62 | 21,500 | | \$10.407 | -- | -- | -- | -- | -- | -- | -- | -- | \$0.464 | -- |
| 180 | 78 | 33,000 | | \$13.039 | -- | -- | -- | -- | -- | -- | -- | -- | \$0.583 | -- |

| Pacific Gas & Electric Company | | | | | | | | | | | | | | | |
|---|---------|---------|------------------------------------|--|----------|---------------|----|----------|----------|----------|----------|----------|----------------|---------|--|
| 3/1/18 Rate Change - AET, ERRR, ResReform, TO19,RS&TACBAA | | | | | | | | | | | | | | | |
| 3/1/2018 | | | | | | | | | | | | | | | |
| ELECTRIC RATES FOR SCHEDULES LS-1, LS-2 AND OL-1 | | | | | | | | | | | | | | | |
| NOMINAL LAMP RATINGS | | | ALL NIGHT RATES PER LAMP PER MONTH | | | | | | | | | | HALF-HOUR ADJ. | | |
| LAMP | AVERAGE | INITIAL | SCHEDULE LS-2 | | | SCHEDULE LS-1 | | | | | | LS-1 & | | | |
| WATTS | MONTH | LUMENS | A | | C | A | B | C | D | E | F | OL-1 | LS-2 | OL-1 | |
| HIGH PRESSURE SODIUM VAPOR LAMPS | | | | | | | | | | | | | | | |
| AT 120 VOLTS | | | | | | | | | | | | | | | |
| 35 | 15 | 2,150 | \$2.675 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.112 | -- | |
| 50 | 21 | 3,800 | \$3.662 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.157 | -- | |
| 70 | 29 | 5,800 | \$4.978 | | \$8.765 | \$11.285 | -- | \$11.553 | \$14.494 | \$15.249 | \$12.638 | \$11.479 | \$0.217 | \$0.226 | |
| 100 | 41 | 9,500 | \$6.952 | | \$10.739 | \$13.259 | -- | \$13.527 | \$16.468 | \$17.223 | \$14.612 | \$13.534 | \$0.307 | \$0.319 | |
| 150 | 60 | 16,000 | \$10.078 | | \$13.865 | \$16.385 | -- | \$16.653 | \$19.594 | \$20.349 | \$17.738 | -- | \$0.449 | -- | |
| 200 | 80 | 22,000 | \$13.368 | | -- | \$19.675 | -- | \$19.943 | \$22.884 | \$23.639 | \$21.028 | -- | \$0.598 | -- | |
| 250 | 100 | 26,000 | \$16.658 | | | \$22.965 | -- | \$23.233 | \$26.174 | \$26.929 | \$24.318 | | \$0.748 | | |
| 400 | 154 | 46,000 | \$25.542 | | | \$31.849 | -- | \$32.117 | \$35.058 | \$35.813 | \$33.202 | | \$1.152 | | |
| AT 240 VOLTS | | | | | | | | | | | | | | | |
| 50 | 24 | 3,800 | \$4.155 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.179 | -- | |
| 70 | 34 | 5,800 | \$5.800 | | \$9.587 | \$12.107 | -- | -- | \$15.316 | \$16.071 | \$13.460 | -- | \$0.254 | -- | |
| 100 | 47 | 9,500 | \$7.939 | | \$11.726 | \$14.246 | -- | \$14.514 | \$17.455 | \$18.210 | \$15.599 | -- | \$0.351 | -- | |
| 150 | 69 | 16,000 | \$11.558 | | \$15.345 | \$17.865 | -- | \$18.133 | \$21.074 | \$21.829 | \$19.218 | -- | \$0.516 | -- | |
| 200 | 81 | 22,000 | \$13.532 | | \$17.319 | \$19.839 | -- | \$20.107 | \$23.048 | \$23.803 | \$21.192 | \$20.383 | \$0.606 | \$0.630 | |
| 250 | 100 | 25,500 | \$16.658 | | \$20.445 | \$22.965 | -- | \$23.233 | \$26.174 | \$26.929 | \$24.318 | \$23.636 | \$0.748 | \$0.778 | |
| 310 | 119 | 37,000 | \$19.784 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.890 | -- | |
| 360 | 144 | 45,000 | \$23.896 | | -- | -- | -- | -- | -- | -- | -- | -- | \$1.077 | -- | |
| 400 | 154 | 46,000 | \$25.542 | | \$29.329 | \$31.849 | -- | \$32.117 | \$35.058 | \$35.813 | \$33.202 | \$32.882 | \$1.152 | \$1.199 | |
| METAL HALIDE LAMPS | | | | | | | | | | | | | | | |
| 70 | 30 | 5,500 | \$5.142 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.224 | -- | |
| 100 | 41 | 8,500 | \$6.952 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.307 | -- | |
| 150 | 63 | 13,500 | \$10.571 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.471 | -- | |
| 175 | 72 | 14,000 | \$12.052 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.538 | -- | |
| 250 | 105 | 20,500 | \$17.481 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.785 | -- | |
| 400 | 162 | 30,000 | \$26.858 | | -- | -- | -- | -- | -- | -- | -- | -- | \$1.211 | -- | |
| 1,000 | 387 | 90,000 | \$63.872 | | -- | -- | -- | -- | -- | -- | -- | -- | \$2.894 | -- | |
| INDUCTION LAMPS | | | | | | | | | | | | | | | |
| 23 | 9 | 1,840 | \$1.688 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.067 | -- | |
| 35 | 13 | 2,450 | \$2.346 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.097 | -- | |
| 40 | 14 | 2,200 | \$2.510 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.105 | -- | |
| 50 | 18 | 3,500 | \$3.168 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.135 | -- | |
| 55 | 19 | 3,000 | \$3.333 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.142 | -- | |
| 65 | 24 | 5,525 | \$4.155 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.179 | -- | |
| 70 | 27 | 6,500 | \$4.649 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.202 | -- | |
| 80 | 28 | 4,500 | \$4.813 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.209 | -- | |
| 85 | 30 | 4,800 | \$5.142 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.224 | -- | |
| 100 | 36 | 8,000 | \$6.129 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.269 | -- | |
| 120 | 42 | 8,500 | \$7.036 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.310 | -- | |
| 135 | 48 | 9,450 | \$8.103 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.359 | -- | |
| 150 | 51 | 10,900 | \$8.597 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.381 | -- | |
| 165 | 58 | 12,000 | \$9.749 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.434 | -- | |
| 200 | 72 | 19,000 | \$12.052 | | -- | -- | -- | -- | -- | -- | -- | -- | \$0.538 | -- | |
| All LEDs now on separate tab | | | | | | | | | | | | | | | |

All LEDs now on separate tab.

Pacific Gas & Electric Company
3/1/18 Rate Change - AET, ERRA, ResReform, TO19,RS&TACBAA
3/1/18

LIGHT EMITTING DIODE (LED) LAMPS
TOTAL RATES (FACILITY + ENERGY CHGS)

| NOMINAL LAMP RATINGS | | ALL NIGHT RATES | | ALL NIGHT RATES | | | | |
|----------------------|-------------|-----------------|---------------------------|--------------------|----------|----------|----------|----------|
| Lamp | Average kWh | PER LAMP | HALF-HOUR | PER LAMP PER MONTH | | | | |
| Watts | Per Month | PER MONTH | ADJUSTMENT | | | | | |
| | | LS-2A | LS-1A, C, E, F & LS-2A | LS-1A | LS-1C | LS-1D | LS-1E | LS-1F |
| 0.0-5.0 | 0.9 | \$0.355 | \$0.007 | \$6.662 | \$6.930 | \$9.871 | \$10.626 | \$8.015 |
| 5.1-10.0 | 2.6 | \$0.635 | \$0.019 | \$6.942 | \$7.210 | \$10.151 | \$10.906 | \$8.295 |
| 10.1-15.0 | 4.3 | \$0.914 | \$0.032 | \$7.221 | \$7.489 | \$10.430 | \$11.185 | \$8.574 |
| 15.1-20.0 | 6.0 | \$1.194 | \$0.045 | \$7.501 | \$7.769 | \$10.710 | \$11.465 | \$8.854 |
| 20.1-25.0 | 7.7 | \$1.474 | \$0.058 | \$7.781 | \$8.049 | \$10.990 | \$11.745 | \$9.134 |
| 25.1-30.0 | 9.4 | \$1.753 | \$0.070 | \$8.060 | \$8.328 | \$11.269 | \$12.024 | \$9.413 |
| 30.1-35.0 | 11.1 | \$2.033 | \$0.083 | \$8.340 | \$8.608 | \$11.549 | \$12.304 | \$9.693 |
| 35.1-40.0 | 12.8 | \$2.313 | \$0.096 | \$8.620 | \$8.888 | \$11.829 | \$12.584 | \$9.973 |
| 40.1-45.0 | 14.5 | \$2.592 | \$0.108 | \$8.899 | \$9.167 | \$12.108 | \$12.863 | \$10.252 |
| 45.1-50.0 | 16.2 | \$2.872 | \$0.121 | \$9.179 | \$9.447 | \$12.388 | \$13.143 | \$10.532 |
| 50.1-55.0 | 17.9 | \$3.152 | \$0.134 | \$9.459 | \$9.727 | \$12.668 | \$13.423 | \$10.812 |
| 55.1-60.0 | 19.6 | \$3.431 | \$0.147 | \$9.738 | \$10.006 | \$12.947 | \$13.702 | \$11.091 |
| 60.1-65.0 | 21.4 | \$3.728 | \$0.160 | \$10.035 | \$10.303 | \$13.244 | \$13.999 | \$11.388 |
| 65.1-70.0 | 23.1 | \$4.007 | \$0.173 | \$10.314 | \$10.582 | \$13.523 | \$14.278 | \$11.667 |
| 70.1-75.0 | 24.8 | \$4.287 | \$0.185 | \$10.594 | \$10.862 | \$13.803 | \$14.558 | \$11.947 |
| 75.1-80.0 | 26.5 | \$4.567 | \$0.198 | \$10.874 | \$11.142 | \$14.083 | \$14.838 | \$12.227 |
| 80.1-85.0 | 28.2 | \$4.846 | \$0.211 | \$11.153 | \$11.421 | \$14.362 | \$15.117 | \$12.506 |
| 85.1-90.0 | 29.9 | \$5.126 | \$0.224 | \$11.433 | \$11.701 | \$14.642 | \$15.397 | \$12.786 |
| 90.1-95.0 | 31.6 | \$5.406 | \$0.236 | \$11.713 | \$11.981 | \$14.922 | \$15.677 | \$13.066 |
| 95.1-100.0 | 33.3 | \$5.685 | \$0.249 | \$11.992 | \$12.260 | \$15.201 | \$15.956 | \$13.345 |
| 100.1-105.1 | 35.0 | \$5.965 | \$0.262 | \$12.272 | \$12.540 | \$15.481 | \$16.236 | \$13.625 |
| 105.1-110.0 | 36.7 | \$6.245 | \$0.274 | \$12.552 | \$12.820 | \$15.761 | \$16.516 | \$13.905 |
| 110.1-115.0 | 38.4 | \$6.524 | \$0.287 | \$12.831 | \$13.099 | \$16.040 | \$16.795 | \$14.184 |
| 115.1-120.0 | 40.1 | \$6.804 | \$0.300 | \$13.111 | \$13.379 | \$16.320 | \$17.075 | \$14.464 |
| 120.1-125.0 | 41.9 | \$7.100 | \$0.313 | \$13.407 | \$13.675 | \$16.616 | \$17.371 | \$14.760 |
| 125.1-130.0 | 43.6 | \$7.380 | \$0.326 | \$13.687 | \$13.955 | \$16.896 | \$17.651 | \$15.040 |
| 130.1-135.0 | 45.3 | \$7.659 | \$0.339 | \$13.966 | \$14.234 | \$17.175 | \$17.930 | \$15.319 |
| 135.1-140.0 | 47.0 | \$7.939 | \$0.351 | \$14.246 | \$14.514 | \$17.455 | \$18.210 | \$15.599 |
| 140.1-145.0 | 48.7 | \$8.219 | \$0.364 | \$14.526 | \$14.794 | \$17.735 | \$18.490 | \$15.879 |
| 145.1-150.0 | 50.4 | \$8.498 | \$0.377 | \$14.805 | \$15.073 | \$18.014 | \$18.769 | \$16.158 |
| 150.1-155.0 | 52.1 | \$8.778 | \$0.390 | \$15.085 | \$15.353 | \$18.294 | \$19.049 | \$16.438 |
| 155.1-160.0 | 53.8 | \$9.058 | \$0.402 | \$15.365 | \$15.633 | \$18.574 | \$19.329 | \$16.718 |
| 160.1-165.0 | 55.5 | \$9.337 | \$0.415 | \$15.644 | \$15.912 | \$18.853 | \$19.608 | \$16.997 |
| 165.1-170.0 | 57.2 | \$9.617 | \$0.428 | \$15.924 | \$16.192 | \$19.133 | \$19.888 | \$17.277 |
| 170.1-175.0 | 58.9 | \$9.897 | \$0.440 | \$16.204 | \$16.472 | \$19.413 | \$20.168 | \$17.557 |
| 175.1-180.0 | 60.6 | \$10.176 | \$0.453 | \$16.483 | \$16.751 | \$19.692 | \$20.447 | \$17.836 |
| 180.1-185.0 | 62.4 | \$10.472 | \$0.467 | \$16.779 | \$17.047 | \$19.988 | \$20.743 | \$18.132 |
| 185.1-190.0 | 64.1 | \$10.752 | \$0.479 | \$17.059 | \$17.327 | \$20.268 | \$21.023 | \$18.412 |
| 190.1-195.0 | 65.8 | \$11.032 | \$0.492 | \$17.339 | \$17.607 | \$20.548 | \$21.303 | \$18.692 |
| 195.1-200.0 | 67.5 | \$11.311 | \$0.505 | \$17.618 | \$17.886 | \$20.827 | \$21.582 | \$18.971 |
| 200.1-205.0 | 69.2 | \$11.591 | \$0.517 | \$17.898 | \$18.166 | \$21.107 | \$21.862 | \$19.251 |
| 205.1-210.0 | 70.9 | \$11.871 | \$0.530 | \$18.178 | \$18.446 | \$21.387 | \$22.142 | \$19.531 |
| 210.1-215.0 | 72.6 | \$12.150 | \$0.543 | \$18.457 | \$18.725 | \$21.666 | \$22.421 | \$19.810 |
| 215.1-220.0 | 74.3 | \$12.430 | \$0.556 | \$18.737 | \$19.005 | \$21.946 | \$22.701 | \$20.090 |
| 220.1-225.0 | 76.0 | \$12.710 | \$0.568 | \$19.017 | \$19.285 | \$22.226 | \$22.981 | \$20.370 |
| 225.1-230.0 | 77.7 | \$12.989 | \$0.581 | \$19.296 | \$19.564 | \$22.505 | \$23.260 | \$20.649 |
| 230.1-235.0 | 79.4 | \$13.269 | \$0.594 | \$19.576 | \$19.844 | \$22.785 | \$23.540 | \$20.929 |

LIGHT EMITTING DIODE (LED) LAMPS CONVERSION
(with LED Surcharge)

| ALL NIGHT RATES | | | | | HALF-HOUR |
|--------------------|----------|----------|----------|----------|-----------------------|
| PER LAMP PER MONTH | | | | | ADJUSTMENT |
| LS-1A | LS-1C | LS-1D | LS-1E | LS-1F | LS-1A, C, D, E & F |
| \$9.476 | \$9.744 | \$22.639 | \$13.440 | \$10.829 | \$0.007 |
| \$9.756 | \$10.024 | \$22.919 | \$13.720 | \$11.109 | \$0.019 |
| \$10.035 | \$10.303 | \$23.198 | \$13.999 | \$11.388 | \$0.032 |
| \$10.315 | \$10.583 | \$23.478 | \$14.279 | \$11.668 | \$0.045 |
| \$10.595 | \$10.863 | \$23.758 | \$14.559 | \$11.948 | \$0.058 |
| \$10.874 | \$11.142 | \$24.037 | \$14.838 | \$12.227 | \$0.070 |
| \$11.154 | \$11.422 | \$24.317 | \$15.118 | \$12.507 | \$0.083 |
| \$11.434 | \$11.702 | \$24.597 | \$15.398 | \$12.787 | \$0.096 |
| \$11.713 | \$11.981 | \$24.876 | \$15.677 | \$13.066 | \$0.108 |
| \$11.993 | \$12.261 | \$25.156 | \$15.957 | \$13.346 | \$0.121 |
| \$12.273 | \$12.541 | \$25.436 | \$16.237 | \$13.626 | \$0.134 |
| \$12.552 | \$12.820 | \$25.715 | \$16.516 | \$13.905 | \$0.147 |
| \$12.849 | \$13.117 | \$26.012 | \$16.813 | \$14.202 | \$0.160 |
| \$13.128 | \$13.396 | \$26.291 | \$17.092 | \$14.481 | \$0.173 |
| \$13.408 | \$13.676 | \$26.571 | \$17.372 | \$14.761 | \$0.185 |
| \$13.688 | \$13.956 | \$26.851 | \$17.652 | \$15.041 | \$0.198 |
| \$13.967 | \$14.235 | \$27.130 | \$17.931 | \$15.320 | \$0.211 |
| \$14.247 | \$14.515 | \$27.410 | \$18.211 | \$15.600 | \$0.224 |
| \$14.527 | \$14.795 | \$27.690 | \$18.491 | \$15.880 | \$0.236 |
| \$14.806 | \$15.074 | \$27.969 | \$18.770 | \$16.159 | \$0.249 |
| \$15.086 | \$15.354 | \$28.249 | \$19.050 | \$16.439 | \$0.262 |
| \$15.366 | \$15.634 | \$28.529 | \$19.330 | \$16.719 | \$0.274 |
| \$15.645 | \$15.913 | \$28.808 | \$19.609 | \$16.998 | \$0.287 |
| \$15.925 | \$16.193 | \$29.088 | \$19.889 | \$17.278 | \$0.300 |
| \$16.221 | \$16.489 | \$29.384 | \$20.185 | \$17.574 | \$0.313 |
| \$16.501 | \$16.769 | \$29.664 | \$20.465 | \$17.854 | \$0.326 |
| \$16.780 | \$17.048 | \$29.943 | \$20.744 | \$18.133 | \$0.339 |
| \$17.060 | \$17.328 | \$30.223 | \$21.024 | \$18.413 | \$0.351 |
| \$17.340 | \$17.608 | \$30.503 | \$21.304 | \$18.693 | \$0.364 |
| \$17.619 | \$17.887 | \$30.782 | \$21.583 | \$18.972 | \$0.377 |
| \$17.899 | \$18.167 | \$31.062 | \$21.863 | \$19.252 | \$0.390 |
| \$18.179 | \$18.447 | \$31.342 | \$22.143 | \$19.532 | \$0.402 |
| \$18.458 | \$18.726 | \$31.621 | \$22.422 | \$19.811 | \$0.415 |
| \$18.738 | \$19.006 | \$31.901 | \$22.702 | \$20.091 | \$0.428 |
| \$19.018 | \$19.286 | \$32.181 | \$22.982 | \$20.371 | \$0.440 |
| \$19.297 | \$19.565 | \$32.460 | \$23.261 | \$20.650 | \$0.453 |
| \$19.593 | \$19.861 | \$32.756 | \$23.557 | \$20.946 | \$0.467 |
| \$19.873 | \$20.141 | \$33.036 | \$23.837 | \$21.226 | \$0.479 |
| \$20.153 | \$20.421 | \$33.316 | \$24.117 | \$21.506 | \$0.492 |
| \$20.432 | \$20.700 | \$33.595 | \$24.396 | \$21.785 | \$0.505 |
| \$20.712 | \$20.980 | \$33.875 | \$24.676 | \$22.065 | \$0.517 |
| \$20.992 | \$21.260 | \$34.155 | \$24.956 | \$22.345 | \$0.530 |
| \$21.271 | \$21.539 | \$34.434 | \$25.235 | \$22.624 | \$0.543 |
| \$21.551 | \$21.819 | \$34.714 | \$25.515 | \$22.904 | \$0.556 |
| \$21.831 | \$22.099 | \$34.994 | \$25.795 | \$23.184 | \$0.568 |
| \$22.110 | \$22.378 | \$35.273 | \$26.074 | \$23.463 | \$0.581 |
| \$22.390 | \$22.658 | \$35.553 | \$26.354 | \$23.743 | \$0.594 |

Pacific Gas & Electric Company
3/1/18 Rate Change - AET, ERRA, ResReform, TO19,RS&TACBAA
3/1/18

LIGHT EMITTING DIODE (LED) LAMPS
TOTAL RATES (FACILITY + ENERGY CHGS)

| NOMINAL LAMP RATINGS | | ALL NIGHT RATES | HALF-HOUR | ALL NIGHT RATES | | | | |
|----------------------|-------------|-----------------|---------------------------|--------------------|----------|----------|----------|----------|
| Lamp | Average kWh | PER LAMP | ADJUSTMENT | PER LAMP PER MONTH | | | | |
| Watts | Per Month | PER MONTH | LS-1A, C, E, F & LS-2A | LS-1A | LS-1C | LS-1D | LS-1E | LS-1F |
| 235.1-240.0 | 81.1 | \$13.549 | \$0.606 | \$19.856 | \$20.124 | \$23.065 | \$23.820 | \$21.209 |
| 240.1-245.0 | 82.9 | \$13.845 | \$0.620 | \$20.152 | \$20.420 | \$23.361 | \$24.116 | \$21.505 |
| 245.1-250.0 | 84.6 | \$14.125 | \$0.633 | \$20.432 | \$20.700 | \$23.641 | \$24.396 | \$21.785 |
| 250.1-255.0 | 86.3 | \$14.404 | \$0.645 | \$20.711 | \$20.979 | \$23.920 | \$24.675 | \$22.064 |
| 255.1-260.0 | 88.0 | \$14.684 | \$0.658 | \$20.991 | \$21.259 | \$24.200 | \$24.955 | \$22.344 |
| 260.1-265.0 | 89.7 | \$14.964 | \$0.671 | \$21.271 | \$21.539 | \$24.480 | \$25.235 | \$22.624 |
| 265.1-270.0 | 91.4 | \$15.243 | \$0.683 | \$21.550 | \$21.818 | \$24.759 | \$25.514 | \$22.903 |
| 270.1-275.0 | 93.1 | \$15.523 | \$0.696 | \$21.830 | \$22.098 | \$25.039 | \$25.794 | \$23.183 |
| 275.1-280.0 | 94.8 | \$15.803 | \$0.709 | \$22.110 | \$22.378 | \$25.319 | \$26.074 | \$23.463 |
| 280.1-285.0 | 96.5 | \$16.082 | \$0.722 | \$22.389 | \$22.657 | \$25.598 | \$26.353 | \$23.742 |
| 285.1-290.0 | 98.2 | \$16.362 | \$0.734 | \$22.669 | \$22.937 | \$25.878 | \$26.633 | \$24.022 |
| 290.1-295.0 | 99.9 | \$16.642 | \$0.747 | \$22.949 | \$23.217 | \$26.158 | \$26.913 | \$24.302 |
| 295.1-300.0 | 101.6 | \$16.921 | \$0.760 | \$23.228 | \$23.496 | \$26.437 | \$27.192 | \$24.581 |
| 300.1-305.0 | 103.4 | \$17.217 | \$0.773 | \$23.524 | \$23.792 | \$26.733 | \$27.488 | \$24.877 |
| 305.1-310.0 | 105.1 | \$17.497 | \$0.786 | \$23.804 | \$24.072 | \$27.013 | \$27.768 | \$25.157 |
| 310.1-315.0 | 106.8 | \$17.777 | \$0.799 | \$24.084 | \$24.352 | \$27.293 | \$28.048 | \$25.437 |
| 315.1-320.0 | 108.5 | \$18.056 | \$0.811 | \$24.363 | \$24.631 | \$27.572 | \$28.327 | \$25.716 |
| 320.1-325.0 | 110.2 | \$18.336 | \$0.824 | \$24.643 | \$24.911 | \$27.852 | \$28.607 | \$25.996 |
| 325.1-330.0 | 111.9 | \$18.616 | \$0.837 | \$24.923 | \$25.191 | \$28.132 | \$28.887 | \$26.276 |
| 330.1-335.0 | 113.6 | \$18.895 | \$0.849 | \$25.202 | \$25.470 | \$28.411 | \$29.166 | \$26.555 |
| 335.1-340.0 | 115.3 | \$19.175 | \$0.862 | \$25.482 | \$25.750 | \$28.691 | \$29.446 | \$26.835 |
| 340.1-345.0 | 117.0 | \$19.455 | \$0.875 | \$25.762 | \$26.030 | \$28.971 | \$29.726 | \$27.115 |
| 345.1-350.0 | 118.7 | \$19.734 | \$0.888 | \$26.041 | \$26.309 | \$29.250 | \$30.005 | \$27.394 |
| 350.1-355.0 | 120.4 | \$20.014 | \$0.900 | \$26.321 | \$26.589 | \$29.530 | \$30.285 | \$27.674 |
| 355.1-360.0 | 122.1 | \$20.294 | \$0.913 | \$26.601 | \$26.869 | \$29.810 | \$30.565 | \$27.954 |
| 360.1-365.0 | 123.9 | \$20.590 | \$0.927 | \$26.897 | \$27.165 | \$30.106 | \$30.861 | \$28.250 |
| 365.1-370.0 | 125.6 | \$20.869 | \$0.939 | \$27.176 | \$27.444 | \$30.385 | \$31.140 | \$28.529 |
| 370.1-375.0 | 127.3 | \$21.149 | \$0.952 | \$27.456 | \$27.724 | \$30.665 | \$31.420 | \$28.809 |
| 375.1-380.0 | 129.0 | \$21.429 | \$0.965 | \$27.736 | \$28.004 | \$30.945 | \$31.700 | \$29.089 |
| 380.1-385.0 | 130.7 | \$21.708 | \$0.977 | \$28.015 | \$28.283 | \$31.224 | \$31.979 | \$29.368 |
| 385.1-390.0 | 132.4 | \$21.988 | \$0.990 | \$28.295 | \$28.563 | \$31.504 | \$32.259 | \$29.648 |
| 390.1-395.0 | 134.1 | \$22.268 | \$1.003 | \$28.575 | \$28.843 | \$31.784 | \$32.539 | \$29.928 |
| 395.1-400.0 | 135.8 | \$22.547 | \$1.015 | \$28.854 | \$29.122 | \$32.063 | \$32.818 | \$30.207 |

LED lights are only applicable to LS-1A, 1C, 1E and 1F

LIGHT EMITTING DIODE (LED) LAMPS CONVERSION
(with LED Surcharge)

| ALL NIGHT RATES | | | | | HALF-HOUR |
|--------------------|----------|----------|----------|----------|-----------------------|
| PER LAMP PER MONTH | | | | | ADJUSTMENT |
| LS-1A | LS-1C | LS-1D | LS-1E | LS-1F | LS-1A, C, D, E & F |
| \$22.670 | \$22.938 | \$35.833 | \$26.634 | \$24.023 | \$0.606 |
| \$22.966 | \$23.234 | \$36.129 | \$26.930 | \$24.319 | \$0.620 |
| \$23.246 | \$23.514 | \$36.409 | \$27.210 | \$24.599 | \$0.633 |
| \$23.525 | \$23.793 | \$36.688 | \$27.489 | \$24.878 | \$0.645 |
| \$23.805 | \$24.073 | \$36.968 | \$27.769 | \$25.158 | \$0.658 |
| \$24.085 | \$24.353 | \$37.248 | \$28.049 | \$25.438 | \$0.671 |
| \$24.364 | \$24.632 | \$37.527 | \$28.328 | \$25.717 | \$0.683 |
| \$24.644 | \$24.912 | \$37.807 | \$28.608 | \$25.997 | \$0.696 |
| \$24.924 | \$25.192 | \$38.087 | \$28.888 | \$26.277 | \$0.709 |
| \$25.203 | \$25.471 | \$38.366 | \$29.167 | \$26.556 | \$0.722 |
| \$25.483 | \$25.751 | \$38.646 | \$29.447 | \$26.836 | \$0.734 |
| \$25.763 | \$26.031 | \$38.926 | \$29.727 | \$27.116 | \$0.747 |
| \$26.042 | \$26.310 | \$39.205 | \$30.006 | \$27.395 | \$0.760 |
| \$26.338 | \$26.606 | \$39.501 | \$30.302 | \$27.691 | \$0.773 |
| \$26.618 | \$26.886 | \$39.781 | \$30.582 | \$27.971 | \$0.786 |
| \$26.898 | \$27.166 | \$40.061 | \$30.862 | \$28.251 | \$0.799 |
| \$27.177 | \$27.445 | \$40.340 | \$31.141 | \$28.530 | \$0.811 |
| \$27.457 | \$27.725 | \$40.620 | \$31.421 | \$28.810 | \$0.824 |
| \$27.737 | \$28.005 | \$40.900 | \$31.701 | \$29.090 | \$0.837 |
| \$28.016 | \$28.284 | \$41.179 | \$31.980 | \$29.369 | \$0.849 |
| \$28.296 | \$28.564 | \$41.459 | \$32.260 | \$29.649 | \$0.862 |
| \$28.576 | \$28.844 | \$41.739 | \$32.540 | \$29.929 | \$0.875 |
| \$28.855 | \$29.123 | \$42.018 | \$32.819 | \$30.208 | \$0.888 |
| \$29.135 | \$29.403 | \$42.298 | \$33.099 | \$30.488 | \$0.900 |
| \$29.415 | \$29.683 | \$42.578 | \$33.379 | \$30.768 | \$0.913 |
| \$29.711 | \$29.979 | \$42.874 | \$33.675 | \$31.064 | \$0.927 |
| \$29.990 | \$30.258 | \$43.153 | \$33.954 | \$31.343 | \$0.939 |
| \$30.270 | \$30.538 | \$43.433 | \$34.234 | \$31.623 | \$0.952 |
| \$30.550 | \$30.818 | \$43.713 | \$34.514 | \$31.903 | \$0.965 |
| \$30.829 | \$31.097 | \$43.992 | \$34.793 | \$32.182 | \$0.977 |
| \$31.109 | \$31.377 | \$44.272 | \$35.073 | \$32.462 | \$0.990 |
| \$31.389 | \$31.657 | \$44.552 | \$35.353 | \$32.742 | \$1.003 |
| \$31.668 | \$31.936 | \$44.831 | \$35.632 | \$33.021 | \$1.015 |

Decorative LED lights are only applicable to LS-1D

EXHIBIT B

Proposed Changes in Electric Rate

Table 1
Pacific Gas and Electric Company
Illustrative Revenue Increase and Class Average Rates
Tuesday, January 01, 2019

| Line No. | Customer Class | Proposed Revenue Increase (000's) | Present Rates (\$/kWh) | Proposed Rates (\$/kWh) | Percentage Change |
|--|----------------------|-----------------------------------|------------------------|-------------------------|-------------------|
| Bundled Service* | | | | | |
| 1 | Residential | \$ 177,729 | \$ 0.20143 | \$ 0.21112 | 4.8% |
| 2 | Small Commercial | \$ 49,974 | \$ 0.23599 | \$ 0.24617 | 4.3% |
| 3 | Medium Commercial | \$ 31,554 | \$ 0.21265 | \$ 0.21902 | 3.0% |
| 4 | Large Commercial | \$ 33,619 | \$ 0.18398 | \$ 0.18908 | 2.8% |
| 5 | Streetlights | \$ 950 | \$ 0.23095 | \$ 0.23634 | 2.3% |
| 6 | Standby | \$ 1,342 | \$ 0.17169 | \$ 0.17589 | 2.4% |
| 7 | Agriculture | \$ 43,432 | \$ 0.20053 | \$ 0.20875 | 4.1% |
| 8 | Industrial | \$ 19,634 | \$ 0.14901 | \$ 0.15166 | 1.8% |
| 9 | Total | \$ 358,234 | \$ 0.19545 | \$ 0.20292 | 3.8% |
| Direct Access and Community Choice Aggregation Service** | | | | | |
| 10 | Residential | \$ 96,987 | \$ 0.15239 | \$ 0.16280 | 6.8% |
| 11 | Small Commercial | \$ 30,185 | \$ 0.15386 | \$ 0.16379 | 6.5% |
| 12 | Medium Commercial | \$ 31,095 | \$ 0.12139 | \$ 0.12749 | 5.0% |
| 13 | Large Commercial | \$ 27,728 | \$ 0.08976 | \$ 0.09429 | 5.0% |
| 14 | Streetlights | \$ 516 | \$ 0.15663 | \$ 0.16183 | 3.3% |
| 15 | Standby | \$ 12 | \$ 0.24901 | \$ 0.26729 | 7.3% |
| 16 | Agriculture | \$ 6,077 | \$ 0.11978 | \$ 0.12652 | 5.6% |
| 17 | Industrial | \$ 20,856 | \$ 0.06437 | \$ 0.06680 | 3.8% |
| 18 | Total | \$ 213,457 | \$ 0.11254 | \$ 0.11898 | 5.7% |
| Departing Load*** | | | | | |
| 19 | Residential | \$ 0 | | | 0.1% |
| 20 | Small Commercial | \$ 2 | | | 0.7% |
| 21 | Medium Commercial | \$ 5 | | | 0.0% |
| | Large Commercial, | | | | |
| 22 | Industrial & Standby | \$ 606 | | | 23.4% |
| 23 | Streetlights | \$ (0) | | | 0.0% |

* Customers who receive electric generation as well as transmission and distribution service from PG

** Customers who purchase energy from non-PG&E suppliers.

*** Customers who purchase their electricity from a non-utility supplier and receive transmission and distribution service from a publicly owned utility or municipality.

A rate comparison cannot be provided for Departed Load as the applicable rates vary by specific departed load customer categories and any average rate that could be derived, would not be representative of any particular departed load category.

EXHIBIT C

Affected Governmental Entities/List of Cities and Counties

SERVICE OF NOTICE OF APPLICATION

In accordance with Rule 3.2(b), Applicant will mail a notice to the following, stating in general terms its proposed change in rates.

State of California

To the Attorney General and the Department of General Services.

State of California
Office of Attorney General
1300 I St Ste 1101
Sacramento, CA 95814

and

Department of General Services
Office of Buildings & Grounds
505 Van Ness Avenue, Room 2012
San Francisco, CA 94102

Counties

To the County Counsel or District Attorney and the County Clerk in the following counties:

| | | |
|--------------|-----------------|-------------|
| Alameda | Mariposa | Santa Clara |
| Alpine | Mendocino | Santa Cruz |
| Amador | Merced | Shasta |
| Butte | Modoc | Sierra |
| Calaveras | Monterey | Siskiyou |
| Colusa | Napa | Solano |
| Contra Costa | Nevada | Sonoma |
| El Dorado | Placer | Stanislaus |
| Fresno | Plumas | Sutter |
| Glenn | Sacramento | Tehama |
| Humboldt | San Benito | Trinity |
| Kern | San Bernardino | Tulare |
| Kings | San Francisco | Tuolumne |
| Lake | San Joaquin | Yolo |
| Lassen | San Luis Obispo | Yuba |
| Madera | San Mateo | |
| Marin | Santa Barbara | |

Municipal Corporations

To the City Attorney and the City Clerk of the following municipal corporations:

| | | |
|-----------------|----------------|-----------------|
| Alameda | Colusa | Hanford |
| Albany | Concord | Hayward |
| Amador City | Corcoran | Healdsburg |
| American Canyon | Corning | Hercules |
| Anderson | Corte Madera | Hillsborough |
| Angels Camp | Cotati | Hollister |
| Antioch | Cupertino | Hughson |
| Arcata | Daly City | Huron |
| Arroyo Grande | Danville | Ione |
| Arvin | Davis | Isleton |
| Atascadero | Del Rey Oaks | Jackson |
| Atherton | Dinuba | Kerman |
| Atwater | Dixon | King City |
| Auburn | Dos Palos | Kingsburg |
| Avenal | Dublin | Lafayette |
| Bakersfield | East Palo Alto | Lakeport |
| Barstow | El Cerrito | Larkspur |
| Belmont | Elk Grove | Lathrop |
| Belvedere | Emeryville | Lemoore |
| Benicia | Escalon | Lincoln |
| Berkeley | Eureka | Live Oak |
| Biggs | Fairfax | Livermore |
| Blue Lake | Fairfield | Livingston |
| Brentwood | Ferndale | Lodi |
| Brisbane | Firebaugh | Lompoc |
| Buellton | Folsom | Loomis |
| Burlingame | Fort Bragg | Los Altos |
| Calistoga | Fortuna | Los Altos Hills |
| Campbell | Foster City | Los Banos |
| Capitola | Fowler | Los Gatos |
| Carmel | Fremont | Madera |
| Ceres | Fresno | Manteca |
| Chico | Galt | Maricopa |
| Chowchilla | Gilroy | Marina |
| Citrus Heights | Gonzales | Mariposa |
| Clayton | Grass Valley | Martinez |
| Clearlake | Greenfield | Marysville |
| Cloverdale | Gridley | McFarland |
| Clovis | Grover Beach | Mendota |
| Coalinga | Guadalupe | Menlo Park |
| Colfax | Gustine | Merced |
| Colma | Half Moon Bay | Mill Valley |

Millbrae
Milpitas
Modesto
Monte Sereno
Monterey
Moraga
Morgan Hill
Morro Bay
Mountain View
Napa
Newark
Nevada City
Newman
Novato
Oakdale
Oakland
Oakley
Orange Cove
Orinda
Orland
Oroville
Pacific Grove
Pacifica
Palo Alto
Paradise
Parlier
Paso Robles
Patterson
Petaluma
Piedmont
Pinole
Pismo Beach
Pittsburg
Placerville
Pleasant Hill
Pleasanton
Plymouth
Point Arena
Portola
Portola Valley
Rancho Cordova
Red Bluff
Redding
Redwood City
Reedley
Richmond

Ridgecrest
Rio Dell
Rio Vista
Ripon
Riverbank
Rocklin
Rohnert Park
Roseville
Ross
Sacramento
Saint Helena
Salinas
San Anselmo
San Bruno
San Carlos
San Francisco
San Joaquin
San Jose
San Juan Bautista
San Leandro
San Luis Obispo
San Mateo
San Pablo
San Rafael
San Ramon
Sand City
Sanger
Santa Clara
Santa Cruz
Santa Maria
Santa Rosa
Saratoga
Sausalito
Scotts Valley
Seaside
Sebastopol
Selma
Shafter
Shasta Lake
Soledad
Solvang
Sonoma
Sonora
South San Francisco
Stockton
Suisun City

Sunnyvale
Sutter Creek
Taft
Tehama
Tiburon
Tracy
Trinidad
Turlock
Ukiah
Union City
Vacaville
Vallejo
Victorville
Walnut Creek
Wasco
Waterford
Watsonville
West Sacramento
Wheatland
Williams
Willits
Willows
Windsor
Winters
Woodland
Woodside
Yountville
Yuba City

Exhibit 68

The devastating and unprecedented impact of the extraordinary wildfires currently burning in Northern California is absolutely tragic. PG&E is committed to working with the state and the communities we serve to understand how each of these fires started and how best to prevent and fight fires in the future.

PG&E de-energizes lines as directed by CAL FIRE or of our own volition in direct response to a specific existing safety condition such as a downed wire or existing fire in the immediate area. Any discussion of the potential for proactively de-energizing lines more broadly for any reason, including weather forecasts, is highly complex due to the significant public safety issues such actions can pose.

As the Commission has noted in its decisions, de-energizing lines can have an immediate and very broad impact on public safety. De-energizing lines can affect first responders and the operation of critical facilities such as hospitals, the provision of water and other essential services, street lights and signals, communications systems, operation of building systems such as elevators, and much more.

The impact on public safety is potentially dramatic and becomes more so depending on how widespread de-energizing is utilized. Prior to the current wildfires, for example, 44 of the 49 counties within PG&E's service territory had at least some portion of the county classified as being in extreme fire danger.

Widespread de-energizing would introduce safety risks that would have to be carefully considered, communicated and addressed across many agencies and with the communities and customers we serve. Potential actions to be considered range from the establishment of communications protocols to notify customers of plans to de-energize lines to the broad deployment of generators among critical customer classes.

We appreciate the opportunity to respond to the following questions as an initial part of this discussion. In reviewing these responses, please bear in mind that the wildfires are ongoing so some of our answers will need to be updated over time.

QUESTION 1:

My understanding and expectation is that PG&E proactively de-energizes powerlines when directed to do so by CAL FIRE (as per your emergency preparedness and response plans). Has PG&E received those directions from CAL FIRE during the past 10 days and has PG&E complied with those orders?

RESPONSE 1:

Yes. CAL FIRE directed PG&E to de-energize five distribution lines and three transmission lines as described below. PG&E complied with these orders.

PG&E de-energized the following Distribution lines:

- On 10/12, CAL FIRE directed PG&E to de-energize Calistoga 1101. On 10/12 at 0858 operators opened the circuit breaker at Calistoga 1101, de-energizing the entire circuit.
- On 10/13, CAL FIRE directed PG&E to de-energize a section of Rincon 1101. On 10/13 at 1824, operators de-energized the section of the Rincon 1101 circuit.
- On 10/14, CAL FIRE directed PG&E to de-energize a section of Sonoma 1103. On 10/14 at 0413, operators de-energized the section of the Sonoma 1103 circuit.
- On 10/14, CAL FIRE directed PG&E to de-energize a section of Sonoma 1105. On 10/14 at 0419, operators de-energized the section of the Sonoma 1105 circuit.
- On 10/14, CAL FIRE directed PG&E to de-energize a section of Rincon 1101 for a second time. On 10/14 at 0726, operators de-energized the section of the Rincon 1101 circuit.

PG&E de-energized the following Transmission lines:

- On 10/9, CAL FIRE directed PG&E to de-energize the Trinity-Cottonwood 115kV line. On 10/9 at 1005, PG&E de-energized the Trinity-Cottonwood 115kV line (entire line).
- On 10/11, CAL FIRE directed PG&E to de-energize the Potter Valley-Mendocino 60kV line. On 10/11 at 1657, PG&E de-energized the Potter Valley-Mendocino 60kV line (entire line).
- On 10/14, CAL FIRE directed PG&E to de-energize the Bridgeville-Cottonwood 115kV line. On 10/14 at 1615, PG&E de-energized the Bridgeville-Cottonwood 115kV line (entire line).

QUESTION 2:

Has PG&E proactively de-energized power lines in the last 10 days without being requested to do so by CAL FIRE? If so, please provide information about location, duration and reasons for doing so.

RESPONSE 2:

PG&E de-energized multiple transmission lines as described below without the direction of CAL FIRE:

1. On 10/9 at 0027, PG&E de-energized the Centerville-Table Mountain-Oroville 60kV line (Lime Saddle to Oroville section) due to fire in the area. The section of line was returned to service on 10/11 at 2227.
2. On 10/9 at 0033, PG&E de-energized the Potter Valley-Willits 60kV line due to fire in the area. The line was returned to service on 10/15 at 1624.
3. On 10/9 at 0644, PG&E de-energized the Fulton-Santa Rosa #1-115kV line due to fire in the area. The line was returned to service on 10/9 at 1455.
4. On 10/9 at 0644, PG&E de-energized the Fulton-Santa Rosa #2-115kV line due to fire in the area. The line was returned to service on 10/14 at 1044.
5. On 10/9 at 0354, PG&E de-energized the Colgate-Smartville #1-60kV line due to a pole fire at pole 0/5. The line was returned to service on 10/10 at 1123.
6. On 10/9 at 1622, PG&E de-energized the Lakeville #1-60kV line due to a pole fire at pole 10/7 at the Dunbar Substation. The line was returned to service on 10/13 at 0834.
7. On 10/9 at 1642, PG&E de-energized the Mendocino-Willits-Fort Bragg 60kV line to repair sagging conductor at pole 6/9. The line was returned to service on 10/15 at 1642.

Regarding distribution lines, PG&E had a significant number of outages where lines were de-energized for various reasons. As with all outages on PG&E's system, we will need to perform our outage review process to make final outage cause determinations. Given that the wildfires and our restoration efforts are ongoing, we do not have all of the information available to perform that outage review process and will update this response.

QUESTION 3:

My understanding and expectation is that PG&E proactively monitors weather conditions in its service territory and takes proactive steps to mitigate risks of weather conditions, such as performing additional inspections and staging crews in areas that may be impacted (as per your emergency preparedness plans and operating procedures).

3.a. Was PG&E monitoring weather conditions in its territory prior to October 8th?

RESPONSE 3.a.:

Yes. PG&E has an active weather monitoring program to maintain awareness of upcoming weather events. In advance of the Sunday 10/08 wind event, PG&E's damage prediction model indicated high winds and the potential for outage activity.

3.b. What was PG&E's assessment of risks to fires for the counties that are now experiencing fires?

RESPONSE 3.b.:

PG&E operates a fire danger rating system that produces daily ratings of fire danger for each of the CAL FIRE Zones within the PG&E territory. PG&E's Adjective Fire Index¹ rating indicated "extreme", the highest rating, for October 8 and October 9 in the counties that are now experiencing fires. In addition, Red Flag Warnings were issued by the National Weather Service and were in effect across these fire areas. The maps indicate that extensive areas of the PG&E territory were rated extreme, and the maps also include Red Flag Warnings, which covered a large portion of Northern California. 44 of the 49 counties within PG&E's service territory had at least some portion of the county in extreme fire danger.

3.c. What steps, if any, did PG&E take to mitigate risks associated with forecasted weather conditions prior to October 8th?

RESPONSE 3.c.:

Below is a timeline of events describing actions PG&E took in advance of activating its Emergency Operations Center on October 9, 2017:

¹ "Adjective" in this context refers to the use of adjectives to rate fires, rather than numbers, i.e., low, moderate, high, very high, extreme.

| Date | Time (if applicable) | Summary of Activity |
|---|----------------------|---|
| Thursday, October 05, 2017 | n/a | Meteorology department begins to report out on wind risks on daily operational calls for the upcoming weekend. |
| Thursday, October 05, 2017 - Sunday, October 08, 2017 | 8:00 | 0800 daily electric operations calls begin to discuss wind event awareness and readiness utilizing meteorology models. Models identify pre-stage and event staffing level forecasts for discussions. Discussions on proactive Operations Emergency Center (OEC) activation are also held. |
| Thursday, October 05, 2017 | 8:00 | Restoration Compliance Operations begins modeling staffing readiness levels for forecasted impacted divisions based upon weather model forecasts. |
| Friday, October 06, 2017 | 7:39 | Emergency Operation Center (EOC) epage distributed to electric distribution leadership reminding teams to review local readiness, on shift resource plans, and OEC activation commitments. EOC on-call staffing levels identified and committed. |
| Friday, October 06, 2017 | 8:00 | 0800 daily electric operations call discusses wind readiness with meteorology reporting, pre-stage resource requirements, emergency center activations, and general readiness. |
| Friday, October 6, 2017 - Sunday, October 8, 2017 | Various throughout | 3 times per day weather forecast modelling / operations teams monitoring grid conditions and staffing operators for incoming weather / prestaging of troublemen resources for emergency response, assessment, and restoration. |
| Saturday, October 7, 2017 - Sunday, October 8, 2017 | 16:00 12:00 | Electric distribution emergency management director updates Electric Operations organization on both wind readiness and day-of updates on current system conditions. |
| Saturday, October 7, 2017 - Sunday, October 8, 2017 | Various | Northern Region, Bay Region, and forecasted impacted division OECs have various calls to discuss region and division readiness plans. |
| Sunday, October 08, 2017 | 8:24 | North Valley OEC activates, includes leadership team and pre-staged resources. |
| Sunday, October 08, 2017 | 11:14 | Sacramento OEC activates, includes leadership team and pre-staged resources. |
| Sunday, October 08, 2017 | 14:56 | Sonoma OEC activates, includes leadership team and pre-staged resources. |

| | | |
|--------------------------|-------|---|
| Sunday, October 08, 2017 | 15:00 | Restoration Compliance Operations executes intra-regional resource movement of both troublemen and Public Safety & Reliability inspectors to pre-stage locations forecasted to be impacted by weather model forecasts. |
| Sunday, October 08, 2017 | 15:00 | Initial electric notification performed by PG&E Public Safety Specialist of initial fire reports near Napa Airport to PG&E Emergency Management organization. |
| Sunday, October 08, 2017 | 16:01 | North Bay (which includes Napa) OEC activates, includes leadership team and pre-staged resources. |
| Sunday, October 08, 2017 | 22:11 | Sierra OEC activates, includes leadership team and pre-staged resources. |
| Sunday, October 08, 2017 | 23:13 | Electric Operations Incident Report sent out by PG&E Emergency Management organization (Public Safety Specialist) on the spread of the Atlas Fire due to strong north east winds and potential impacts to Electric Distribution circuits in Napa. |
| Sunday, October 08, 2017 | 23:30 | Electric distribution emergency management director updates Electric Operations organization on current wind impacts system conditions. |
| Monday, October 09, 2017 | 0:09 | Humboldt OEC activates, includes leadership team and pre-staged resources. |
| Monday, October 09, 2017 | 1:16 | E-mail notification to Electric and Gas Leadership and all EOC on-call that the EOC will be activating starting at 06:00. |
| Monday, October 09, 2017 | 2:34 | Northern Region Regional Emergency Center activates. |
| Monday, October 09, 2017 | 2:35 | Electric Transmission Emergency Center (ETEC) activated. |
| Monday, October 09, 2017 | 6:00 | PG&E Emergency Operations Center activated. |

In addition to these operational activities, PG&E activated its Fire Danger Precautions in Hazardous Fire Areas standard, PG&E Utility Standard TD-1464S, which requires employees to adhere to the following directives, among others:

- Fuses are not replaced until line has been patrolled and all trouble cleared
- Thoroughly water down all flammable material within a 15-foot radius of the test location before replacing any blown open-link fuses
- Do not reclose line reclosers, sectionalizers, or circuit breakers that have tested automatically to lockout or open position until the overhead line in the involved protected zone has been patrolled and all found trouble cleared

In addition to these activities, PG&E has also been executing the following:

- Routine vegetation management work to maintain clearance requirements per applicable state and CPUC regulations. PG&E manages about 123 million trees in our 70,000 square mile service area.
- Public Safety and Reliability tree and limb removal work beyond compliance requirements which targets areas with higher history of vegetation outages
 - i. 4,600 trees worked in the Napa district (2012 – 2017)
 - ii. 15,700 trees worked in the Sonoma district (2012 – 2017)
- Transmission vegetation management work to enhance system reliability, reduce fire risk and maintain clearance requirements per applicable Federal, State and CPUC regulations
- Since 2014, in response to the drought, PG&E has added extraordinary measures to our tree maintenance program that prunes or removes more than 1.2 million trees each year. These measures include:
 - i. Foot and aerial patrols, in addition to the use of remote sensing technology, specifically LiDAR Light-detecting and Ranging, to identify trees to be worked.
 - ii. Inspecting along power lines in high fire-danger areas twice a year, and some areas as often as four times a year. In 2016, we conducted these additional patrols on 68,000 miles of power line, and in 2017 we expect to patrol 73,000 miles of line a second time.
 - iii. In 2016, we removed about 236,000 dead or dying trees, in addition to pruning or removing about 1.2 million trees under the annual program to prevent contact with power lines. This is about seven times more trees removed than our pre-drought three-year average.
 - iv. In 2017, we expect to remove about 150,000 dead trees to prevent them from contacting power lines, starting wildfires and posing other public safety risks.
 - v. Wood debris management.
 - vi. Fuel reduction and emergency response access.
 - vii. Early detection of wildfires and forest disease and infestation.
 - viii. Participation in Governor's Tree Mortality Task Force.

Below is a summary of Electric Distribution spending on vegetation management and fire hazard prevention:

| \$M | 2014 | 2015 | 2016 | 2017 September YTD |
|----------------------------------|---------|---------|---------|--------------------------|
| Electric Distribution | | | | |
| Fire Hazard Prevention | \$25.3 | \$33.0 | \$183.6 | \$163.7 |
| Vegetation Management | \$189.8 | \$195.1 | \$198.7 | \$150.3 |
| Total | \$215.1 | \$228.1 | \$382.3 | \$314.0 |

This table does not include spending on PG&E's electric transmission, gas, and power generation vegetation management activities.

QUESTION 4:

My understanding and expectation is that PG&E has been monitoring weather forecasts, specifically wind conditions, since fires started on October 8th.

4.a. What actions has PG&E taken in response to any of the forecasts?

RESPONSE 4.a.:

Subsequent to the initial north winds and fire activity Sunday night into Monday morning (10/08 to 10/09), there have been two periods of extreme fire weather concern. The first was Wednesday night into Thursday (10/11 to 10/12), when forecasted north winds prompted more extreme fire danger ratings and additional Red Flag Warnings. The second was Friday night into Saturday (10/13 to 10/14) when another round of dry north winds drove another period of critical fire danger. In response to each of these additional events, PG&E Meteorology communicated the additional risk periods to the organization from EOC leadership on down to OEC and the field. Starting on Wednesday, 10/11, Distribution Operations Centers began to implement the strategy to deactivate reclose functions on additional protective devices within the potential fire expansion zones on SCADA capable Line Reclosers and Circuit Breakers. PG&E also coordinated with CAL FIRE to de-energize lines as indicated in response to question #1 and followed its procedures to de-energize lines when circumstances warranted it, as indicated in response to question #2. Given that the wildfires and our restoration efforts are ongoing, we do not have all of the information available to respond at this time and will update this response.

4.b. Is PG&E continuing to monitor weather conditions?

RESPONSE 4.b.:

Yes. PG&E continues to monitor current and forecasted weather conditions. When periods of expected adverse weather approach, PG&E increases the number of forecasts provided to ensure timely response.

4.c. In your operational assessment, is there a need to proactively de-energize any additional lines to prevent any more fires from igniting?

RESPONSE 4.c.:

PG&E will continue to work with CAL FIRE to de-energize lines as directed, and will also apply our procedures to de-energize if we encounter a safety condition warranting the de-energizing of the lines. As stated below, the question of whether to proactively de-energize lines for any reason, including weather forecasts, is a highly complex one given the significant public safety issues such actions can pose.

QUESTION 5:

Some utilities, for example SDG&E, have procedures in place to proactively de-energize power lines when weather conditions indicate extremely high risks of fires (based on temperature, humidity, wind-speed and other factors). Does PG&E have similar procedures in place?

RESPONSE 5:

PG&E does not have a procedure to de-energize power lines and thereby disable power service to its customers in advance of weather conditions that indicate extreme fire risk. Any discussion of proactively de-energizing lines is highly complex due to significant public safety issues such actions can pose. De-energizing lines can have an immediate and very broad impact on public safety, affecting first responders and the operation of critical facilities such as hospitals, the provision of water and other essential services, street lights and signals, communications systems, operation of building systems such as elevators, and much more. The impact on public safety is potentially dramatic and becomes more so depending on how widespread de-energizing is utilized. Prior to the current wildfires, for example, 44 of the 49 counties within PG&E's services territory had at least some portion of the county classified as being in extreme fire danger.

QUESTION 6:

6.a. Does PG&E have auto reclosers deployed through the counties impacted by the fires?

RESPONSE 6.a.:

Yes. PG&E utilizes auto reclosing on transmission and distribution circuit breakers in addition to automatic line reclosers (which can also be described as pole mounted breakers) in all counties throughout the entire service territory.

6.b. If you have auto reclosers deployed, what are the current protection settings?

RESPONSE 6.b.:

Each Recloser has its own protection settings. There are "Phase" minimum trip settings to detect Line-to-Line type faults, as well as "Ground" minimum trip settings to detect Line-to-Ground type faults. Depending upon the circumstance the Recloser may be set anywhere from one to three tests before it completely locks-out (opens). In purely underground areas the Recloser may be set for zero tests to mitigate risks to public safety or reliability. PG&E can follow up regarding individual settings as requested.

6.c. Do PG&E reclosers allow for remote configuration changes to protection settings (e.g. reduce the duration of a fault and the duration of discharged energy, restrict the number and duration of automated reclose attempts etc.)?

RESPONSE 6.c.:

Some Reclosers have remote SCADA communication capabilities that can have the Reclosing Relay disabled remotely, and in some cases can also be changed from its normal setting configuration (Alt-1) to an Alternate setting configuration (Alt-2) remotely. In all cases where remote SCADA communication capabilities are available, the Recloser can be opened or closed remotely by the Distribution Operator at the Control Center.

Exhibit 69

CALIFORNIA PUBLIC UTILITIES COMMISSION
Safety and Enforcement Division
Electric Safety and Reliability Branch

Incident Investigation Report

Report Date: November 8, 2019

Incident Number: E20181108-01

Utility: Pacific Gas and Electric Company (PG&E)

Date and Time of the Incident: November 8, 2018, 0629 hours

| | |
|--|-------------------------------------|
| Location of the Incident: Tower :27/222 | Concow Rd. and Rim Rd. intersection |
| Pulga, CA | Concow, CA |
| County: Butte | County: Butte |

Fatality / Injury: 85 fatalities

Property Damage: Unknown

Utility Facilities involved: Caribou-Palermo 115 kV Transmission Line and Big Bend 1101 12 kV Distribution Circuit

Violation: Yes

I. Summary

In the early morning hours on November 8, 2018, a fire ignited near Camp Creek Road near the community of Pulga in Butte County. The California Department of Forestry and Fire Protection (CAL FIRE) determined that the fire was caused by electric transmission lines owned and operated by Pacific Gas and Electric Company (PG&E) near the Pulga area.¹ The CAL FIRE investigation identified that the fire started near Pulga and that there was a second ignition site near the intersection of Concow Road and Rim Road that was caused by vegetation contact with electrical distribution lines owned and operated by PG&E.² That fire was overtaken by the fire that started near

¹ CAL FIRE News Release on May 15, 2019.

² Id.

Pulga.³ The resulting Camp Fire burned approximately 153,336 acres, destroying 18,804 structures and resulting in 85 fatalities.⁴

The Caribou-Palermo Transmission Line, identified as the transmission line which caused the Camp Fire,⁵ remains de-energized since the fire.

Based on the Safety Enforcement Division's (SED) review, SED found that PG&E violated requirements in the Commission's General Order (GO) 95, GO 165, and Resolution E-4184; and California Public Utilities Code Section 451. SED identified the following PG&E violations:

| General Order Rule, Public Utilities Code Requirements | Violations |
|---|---|
| GO 95, Rule 44.3 | PG&E failed to replace or reinforce the C-hook on Tower :27/222 (Incident Tower) before its safety factor was reduced to less than two-thirds of the safety factor specified in Rule 44.1, Table 4, which is a violation of Rule 44.3 |
| GO 95, Rule 31.1 | PG&E failed to maintain the C-hook supporting the transposition jumper on the Incident Tower :27/222 for its intended use and regard being given to the conditions under which it was to be operated. |
| GO 95, Rule 31.2 | PG&E failed to inspect Incident Tower thoroughly and failed to detect an immediate Safety Hazard or Priority A condition on the incident C-hook. |
| GO 165, Section IV | PG&E failed to follow its procedures by failing to document the factors and reasons that led to the delay in the repair work on the Incident Tower. |
| GO 165, Section IV | PG&E failed to conduct detailed climbing inspections when conditions to trigger climbing inspections were evident as specified in PG&E's procedures. |

³ CAL FIRE News Release on May 15, 2019.

⁴ Butte County Sheriff's Camp Fire Update (September 25, 2019)

⁵ PG&E's 20 Day Report (December 11, 2018) states, "On CAL Fire's website, CAL FIRE has identified coordinates for the Camp Fire near Tower :27/222 on PG&E's Caribou-Palermo 115 kV Transmission Line."

| | |
|--|--|
| | Wear on the original working eyes that remained on the Incident Tower is an indication of a known condition with potential to recur on the added hanger plates with working eyes, which should have triggered detailed climbing inspection to examine the added hanger plates. |
| GO 95, Rule 31.1 | The condition of the C-hook (material loss > 50%) supporting the transposition jumper on Tower :24/199 demonstrates that PG&E did not maintain the tower for its intended use. |
| GO 95, Rule 31.2 | PG&E failed to inspect Tower :24/199 thoroughly and failed to detect an immediate Safety Hazard or Priority A Condition on the C-hook. |
| GO 165, Section IV | C-hook on Tower :24/199 had material loss of over 50%. PG&E failed to detect and correct the Priority A condition as specified in PG&E's procedures. |
| GO 95, Rule 18 | PG&E assigned an incorrect priority for an immediate Safety Hazard (disconnected insulator hold-down anchor on Tower :27/221). |
| GO 165, Section IV | PG&E failed to follow its procedures by using an outdated inspection form during the detailed climbing inspections that PG&E conducted from September 19 to November 5, 2018. |
| D.06-04-055, as amended by Resolution E-4184 | PG&E failed to report the reportable incident on the Big Bend 1101 12kV Distribution Circuit in a timely manner. |
| CA Public Utilities Code Section 451 | PG&E failed to maintain an effective inspection and maintenance program to identify and correct hazardous conditions on its transmission lines in order to furnish and maintain service and facilities, as are necessary to promote the safety and health of its patrons and the public. |

A. Rules and Other Requirements Violated

GO 95, Rule 18(A) [Resolution of Potential Violations of General Order 95 and Safety Hazards] states in part:

“Each company (including electric utilities and communications companies) is responsible for taking appropriate corrective action to remedy potential violations of GO 95 and Safety Hazards posed by its facilities.”

“For the purposes of this rule, ‘Safety Hazard’ means a condition that poses a significant threat to human life or property.”

“Each company (including utilities and CIPs) is responsible for taking appropriate corrective action to remedy Safety Hazards and GO 95 nonconformances posed by its facilities.”

GO 95, Rule 31.1 Design, Construction and Maintenance states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.”

GO 95, Rule 31.2 Inspection of Lines states in part:

“Lines shall be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard.”

GO 95, Rule 44.3 Replacement

*“Lines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to factors such as deterioration and/or installation of additional facilities) in Grades “A” and “B” construction to less than two-thirds of the safety factors specified in Rule 44.1 and in Grade “C” construction to less than one-half of the safety factors specified in Rule 44.1. Poles in Grade “C” construction that only support communication lines shall also conform to the requirements of Rule 81.3A. **In no case***

shall the application of this rule be held to permit the use of structures or any member of any structure with a safety factor less than one.”[Emphasis added]

GO 165, Section IV, Transmission Facilities states in part:

“Each utility shall prepare and follow procedures for conducting inspections and maintenance activities for transmission lines.”

Appendix B of Commission Decision (D.) 06-04-055, as amended by Resolution E-4184 on August 21, 2008, states in part:

“Within 2 hours of a reportable incident during normal working hours or within 4 hours of a reportable incident outside of normal working hours, the utility shall provide notice to designated CPUC staff of the general nature of the incident, its cause and estimated damage. The notice shall identify the time and date of the incident, the time and date of notice to the Commission, the location of the incident, casualties that resulted from the incident, identification of casualties and property damage, and the name and telephone number of a utility contact person....

2. Reportable incidents are those which: (a) result in fatality or personal injury rising to the level of in-patient hospitalization and attributable or allegedly attributable to utility owned facilities; (b) are the subject of significant public attention or media coverage and are attributable or allegedly attributable to utility facilities; or (c) involve damage to property of the utility or others estimated to exceed \$50,000...”

California Public Utilities Code Section 451 states in part:

“Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.”

B. Witnesses

| | Name | Title |
|----|-------------------|-------------------------------------|
| 1 | Chris Lee | CPUC Lead Investigator |
| 2 | Anwar Safvi | CPUC Investigator |
| 3 | Andie Biggs | CPUC Investigator |
| 4 | Banu Acimis | CPUC Program and Project Supervisor |
| 5 | Lee Palmer | CPUC Deputy Director |
| 6 | Tom Kluge | CAL FIRE Fire Captain |
| 7 | Shawn Zimmermaker | CALFIRE Division Chief |
| 8 | | Exponent Investigator |
| 9 | | PG&E Technician |
| 10 | | PG&E Technician |
| 11 | | PG&E, Principal Events Lead |

C. Evidence

| | Source | Description |
|----|--------|---|
| 1 | PG&E | Initial Incident Report, 11/08/18 |
| 2 | CPUC | Pulga Evidence Collection, 11/14/18 |
| 3 | PG&E | Second Incident Report, 11/16/18 |
| 4 | CPUC | Concow Evidence Collection, 11/19/18 |
| 5 | CPUC | Data Request 1 and 2, 12/06/18 |
| 6 | PG&E | 20-day Incident Report, 12/11/18 |
| 7 | PG&E | Downloaded Data from Relays at Palermo, Oroville and Table Mountain Substations, 12/14/2018 |
| 8 | CPUC | Data Request 3, 1/11/19 |
| 9 | CPUC | Data Request 4, 1/16/19 |
| 10 | PG&E | Data Request Response to DR 3, 1/17/19 and 1/25/19 (partial) |
| 11 | PG&E | Data Request Response to DR 1 and 2, 2/1/19 (partial) |
| 12 | CPUC | Data Request 3A, 2/6/19 |
| 13 | PG&E | Data Request Response to DR 3A, 2/6/19 |
| 14 | PG&E | Data Request Response to DR 1, 2 and 3, 3/1/19 (partial) |
| 15 | PG&E | Priority A Line Corrective Notifications from Enhanced Inspection of the Caribou-Palermo Transmission Line after November 8, 2018, 3/6/18 |
| 16 | PG&E | Data Request Response to DR 1 and 4, 3/8/19 (partial) |
| 17 | PG&E | Data Request Response to DR 1 and 4, 3/18/19 (partial) |
| 18 | CPUC | Data Request 5, 3/19/19 |
| 19 | CPUC | Data Request 6, 3/20/19 |

| | | |
|----|------|--|
| 20 | PG&E | Additional 495 Notifications for the Caribou-Palermo Transmission Line from Enhanced Inspection, 3/20/19 |
| 21 | CPUC | CP115 Tower :20/160 Evidence collection, 3/28/19 |
| 22 | CPUC | CP115 Tower :24/199 Evidence collection, 3/29/19 |
| 23 | PG&E | Data Request Response to DR 1, 2, and 4, 4/2/19 (partial) |
| 24 | PG&E | Data Request Response to DR 1, 2, 4 and 6, 4/5/19 (partial) |
| 25 | PG&E | Data Request Response to DR 1, 2, 4 and 5, 4/12/19 (partial) |
| 26 | PG&E | Data Request Response to DR 1,2, and 6, 4/16/19 (partial) |
| 27 | PG&E | Data Request Response to DR 4 and 6, 4/19/19 (partial) |
| 28 | PG&E | Data Request Response to DR 4, 5 and 6, 4/26/19 (partial) |
| 29 | PG&E | Data Request Response to DR 1 and 4, 5/13/2019 (partial) |
| 30 | PG&E | Data Request Response to DR 4 (partial), photos from 3/28/19 & 3/29/19 evidence collection, 5/23/19 |
| 31 | PG&E | Data Request Response to DR 2 and 4, 6/3/19 (partial) |
| 32 | PG&E | Data Request Response to DR 2 and 4, 6/24/19 (partial) |
| 33 | CPUC | CPUC Data Request 7, 6/25/19 |
| 34 | PG&E | Data Request Response to DR 2, 7/15/19 (partial) |
| 35 | PG&E | Data Request Response to DR 7, 7/23/19 (partial) |
| 36 | CPUC | Data Request 8, 8/2/19 |
| 37 | PG&E | Data Request Response to DR 4 and 7, 8/5/19 (partial) |
| 38 | PG&E | Data Request Response to DR 4 and 7, 8/9/19 (partial) |
| 39 | PG&E | Data Request Response to DR 2 and 7, 8/16/19 (partial) |
| 40 | PG&E | Data Request Response to DR 7, 8/23/19 (partial) |
| 41 | PG&E | Data Request Response to DR 7 and 8, 8/30/19 (partial) |
| 42 | PG&E | Data Request Response to DR 7, 9/19/19 (partial) |
| 43 | PG&E | Data Request Response to DR 4, 9/26/19 (partial) |
| 44 | PG&E | Data Request Response to DR 8, 10/8/19 (partial) |
| 45 | CPUC | Data Request 9, 10/8/19 |
| 46 | CPUC | Data Request 9 Supplemental, 10/15/19 |
| 47 | PG&E | Data Request Response to DR 9, 10/18/19 (partial) |
| 48 | PG&E | Data Request Response to DR 7, 9, 9 Supplemental, 10/25/19 (partial) |
| 49 | CPUC | Data Request 10, 10/28/19 |
| 50 | CPUC | Data Request 11, 10/29/19 |
| 51 | PG&E | Data Request Response to DR 2, 4, 10, 11/05/19 (partial) |
| 52 | PG&E | Data Request Response to DR 10, 11, 11/07/19 (partial) |

II. Background

SED investigated the involvement of PG&E facilities in the fire. The goal of SED's investigation is to identify whether there were any violations of the Commission's General Orders, the Public Utilities Code, and related requirements. SED conducted field observations of evidence collection and reviews of PG&E's operations and maintenance procedures and relevant records.

SED's field visits are summarized below:

- November 14, 2018 – SED observed CAL FIRE collect evidence⁶ from Tower :27/221 and Tower :27/222 (the "Incident Tower") along the Caribou-Palermo Transmission Line, near the town of Pulga.
- November 19, 2018 – SED observed CAL FIRE collect evidence⁷ near the intersection of Concow Road and Rim Road.
- December 4, 2018 – SED and Exponent observed PG&E download relay data from Palermo, Table Mountain and Oroville Substations.
- March 28, 2019 – SED observed CAL FIRE and Butte County collect evidence⁸ from Tower :20/160 on the Caribou-Palermo Transmission Line.
- March 29, 2019 – SED observed CAL FIRE and Butte County collect evidence⁹ from Tower :24/199 on the Caribou-Palermo Transmission Line.

SED submitted eleven data requests totaling hundreds of questions to PG&E. The questions included requests for procedures, records, forms, and responses to specific questions related to the Camp Fire. In addition to the responses to the data requests, PG&E also provided results of enhanced inspections that were performed on the Caribou-Palermo Transmission Line subsequent to the Camp Fire. PG&E's enhanced inspections utilized aerial drones and climbing of the Caribou-Palermo Transmission Line.

SED's investigation focused on the first ignition point near the town of Pulga – specifically on the Incident Tower and its adjacent tower, Tower :27/221. SED limited its investigation of the second ignition point (the intersection of Concow Road and Rim Road) because the fire from the ignition point near Pulga consumed the fire that started at the second ignition point.

The Incident Tower and associated equipment were initially installed between 1919 and 1921 and were placed into service on May 6, 1921 by the Great Western Power

⁶ Bates PGE-CAMP-CPUC-0000000001 (Evidence Collection List, Update 12/18/2018).

⁷ Id.

⁸ 11/5/2019 PG&E response to CPUC data request SED-010, Question 1.

⁹ 11/5/2019 PG&E response to CPUC data request SED-010, Question 2.

Company.¹⁰ PG&E took ownership of the Caribou-Palermo Transmission Line in 1930.¹¹

The Caribou-Palermo Transmission Line connects PG&E's Caribou #1 Powerhouse to the Palermo Substation.¹² Circuit Breaker (CB) 112 is the protection device on the north end of the line, located at the Caribou #1 Powerhouse. CB 152 is the protection device on the south end of the line, located at the Palermo Substation.¹³

III. SED Review and Analysis

A. Timeline Summary of the Incident

November 8, 2018

- Wind speed and wind gusts recorded at 0610 hours at the Stirling City weather station were 10.27 mph and 36.39 mph respectively.¹⁴ The Stirling City weather station is a PG&E weather station located closest to the two ignition points identified by CAL FIRE.
- At approximately 0457 hours on November 8, 2018, the Supervisory Control and Data Acquisition (SCADA) data from the Palermo Substation¹⁵ showed the current in the line reached approximately 80 Amps¹⁶ as shown in Figure 1.
- At 0615 hours, a Palermo Substation relay detected a ground fault current of 256 Amps and opened Circuit Breaker (CB) 152.¹⁷
- At 0615 hours, a Caribou #1 Powerhouse relay detected a ground fault current of 202 Amps and opened CB 112. The fault was isolated with both circuit breakers 152 and 112 opening.¹⁸
- According to CAL FIRE's website, the fire started at 0629 hours at 39.82° latitude and -121.44° longitude.¹⁹ These coordinates correspond to a

¹⁰ 2/1/2019 PG&E response to CPUC data request SED-001, Question 37.

¹¹ PG&E Response to Notice Re California Wildfires - Case 3:14-cr-00175-WHA, Document 956, Exhibit A (Filed 12/31/18).

¹² Bates PGE-CAMP-CPUC-0000002534.

¹³ Bates PGE-CAMP-CF-0000000123.

¹⁴ Bates PGE-CAMP-CPUC-0000012017 in response to Data Request SED-001, Question 49.

¹⁵ Bates PGE-CAMP-CF-0000000121.

¹⁶ Bates PGE-CAMP-CF-0000000121.

¹⁷ 4/2/2019 PG&E response to CPUC data request SED-001, Caribou-Palermo, Question 4.

¹⁸ 4/2/2019 PG&E response to CPUC data request SED-001, Caribou-Palermo, Question 4.

¹⁹ CAL FIRE Incident Website at: <https://inciweb.nwcg.gov/incident/6250/>

location near the Incident Tower of the Caribou-Palermo 115 kV Transmission Line.²⁰

- At 0630 hours, a PG&E employee observed fire in the vicinity of the Incident Tower, and this observation was reported to 911 by PG&E employees.²¹
- At 0645 hours, PG&E Big Bend 1101 12 kV Distribution Circuit experienced an outage.²²
- The outage was a result of an open operation of Line Recloser 1704 - a protection device on PG&E's Big Bend 1101 12 kV Distribution Circuit.
- Between approximately 0900 and 1300 hours, PG&E conducted an aerial patrol of the Caribou-Palermo 115 kV Transmission Line. At the Incident Tower, the patrol identified a suspension insulator supporting a transposition jumper that had disconnected from an arm on the tower.^{23,24}
- At 1806 hours, PG&E submitted an incident report to the CPUC, reporting the outage on the Caribou-Palermo Transmission Line, and an observation of damage to a transmission tower near Pulga, in the area of the Camp Fire.

November 15, 2018

- At approximately 1800 hours, CAL FIRE held a press conference during which it identified a "possible second origin related to the Camp incident in the Concow area."²⁵

November 16, 2018

- At 1600 hours, PG&E reported the outage on the Big Bend 1101 12 kV Distribution Circuit.

²⁰ PG&E's 20 Day Report (December 11, 2018).

²¹ PG&E's 20 Day Report (December 11, 2018).

²² PG&E's 20 Day Report (December 11, 2018).

²³ PG&E's 20 Day Report (December 11, 2018).

²⁴ 2/1/2019 PG&E response to CPUC data request SED-001, Question 1.

²⁵ 2/1/2019 PG&E response to CPUC data request SED-001 – Big Bend 1101 Distribution, Question 1.

B. Field Review

1. Observations

SED visited the incident site on November 14, 2018 along with Tom Kluge and Shawn Zimmermaker of CAL FIRE. The incident site is located at 39.82° latitude and -121.44° longitude, near the town of Pulga.²⁶

At first, SED made observations at Tower :27/221, adjacent to the Incident Tower. The distance between the two towers is approximately 845 feet.²⁷ SED observed that the hold-down anchor on Tower :27/221 had disconnected from the suspension insulator. This is shown in Figure 2.

The Incident Tower is a dead-end transposition tower. On the Incident Tower, SED observed that a suspension insulator supporting a transposition jumper had separated from an arm of the tower and remained suspended above the ground (Figure 3). Prior to the failure, two C-hooks provided mechanical support to the incident transposition jumper; and each C-hook carried a load of approximately 143 lbs.²⁸ One of the C-hooks failed at the point where it had been in contact with the hanger plate. SED made a close observation of the portion of the failed C-hook that remained attached to the separated suspension insulator. SED observed that most of the cross-section was flat and smooth. At the upper portion of the cross-section – approximately the top 20 to 25 % of the cross-section of the C-hook where the failure occurred – the surface of the metal was rough, and a small, sharp piece of the material juttred out. In SED's assessment: the smooth portion is an indication of wear that occurred over a long period of time prior to failure; the rough upper portion of the cross-section fractured at the time of the incident. The observations are confirmed by the photo in Figure 4. SED also observed flash marks on the transposition jumper which SED concluded were a result of arcing between the jumper and the tower (Figure 5).

SED observed that hanger plates had been added to the left and right runner arms on the Incident Tower. PG&E could not locate records that identify when the hanger plates were added.²⁹ However, both the original runner arms, which remained in place, and the added hanger plates showed signs of wear on the working eyes as shown by

²⁶ CAL FIRE Incident Website at: <https://inciweb.nwccg.gov/incident/6250/>

²⁷ 2/1/2019 PG&E response to the CPUC data request SED-001, Question 39.

²⁸ 7/23/2019 PG&E response to CPUC data request SED-007, Question 2: PGE-CAMP-CPUC-06252019-DR_SED-007_Q02_Camp Fire.

²⁹ In its July 23, 2019 response to CPUC data request SED-007, Question 12, PG&E states it has not been able to identify the installation date for the hanger plates. In its April 2, 2019 response to CPUC data request SED-002, Question 32, PG&E states that approximately around 2000-2001, it began using Systems Applications and Products (SAP), an electronic system for processing all work orders for distribution and transmission assets. Before that, work orders for transmission assets were maintained in hard copies.

elongated holes in Figure 6 and Figure 7. For reference, Figure 8 shows a typical location of runner arms on transmission towers that have them.

On March 29, 2019, SED observed evidence collected from Tower :24/199 on the Caribou-Palermo Transmission Line. SED observed significant wear on the right phase suspension insulator C-hook (Figure 9). By SED's conservative estimation, the area of the C-hook that rests on the hanger plate was worn over 50% through. The cross-section of the C-hook, where the material was worn away, was flat and smooth. The March 29, 2019 evidence collection was requested by the Butte County District Attorney in addition to CAL FIRE.

Tower :24/199 is a transposition tower, similar in configuration to the Incident Tower. It is located approximately three miles north of the Incident Tower.

2. Analysis

As C-hooks wear down, the load they can support decreases. The failure of the C-hook supporting the transposition jumper on the Incident Tower shows that it could not support the load it was intended to support. A safety factor of less than one means the point has been reached at which the load exceeds the strength of the material. SED determined that PG&E failed to inspect the tower and the C-hook thoroughly to identify the deterioration. According to Rule 44.3, lines or parts thereof must be replaced or reinforced before safety factors have been reduced to less than two-thirds of the safety factor specified in Rule 44.1 which shows safety factors in Table 4. PG&E was required to maintain the safety factor above 1.33, which is two-thirds of 2, at all times. PG&E violated GO 95, Rule 44.3 because it failed to maintain the safety factor of the C-hook above 1.33; in fact, the safety factor was less than one when it failed on November 8, 2018. In addition, PG&E violated GO 95, Rule 31.1, by not maintaining the Incident Tower on the Caribou-Palermo Transmission Line for its intended use to enable the furnishing of safe, proper, and adequate service.

The C-hook on Tower :24/199 showed material loss of over 50% in the cross section where it contacted the hanger plate. This assessment was based on SED's field observation of the C-hook, in addition to confirmation by the photo taken. Based on PG&E's Electric Transmission Preventive Maintenance (ETPM) Manual,³⁰ this is a hazardous Priority A³¹ condition which requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. The hazardous condition of the C-hook demonstrates that PG&E did not maintain Tower :24/199 for its intended use, a violation of Rule 31.1. Further, PG&E's failure to follow

³⁰ TD-1001M Electric Transmission Preventive Maintenance Manual, Table 8, page 24 (Rev: 03).

³¹ TD-1001M Electric Transmission Preventive Maintenance Manual, Table 7, page 18 (Rev: 03). Priority A requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. SAP due date will be 30 days to allow time for post-construction processes and notification close-out. Corrective actions are required within 3 months, 12 months, and 24 months for Priority levels B, E, and F respectively.

its procedures and detect and correct this Priority A condition is a violation of GO 165, Section IV, which states in part:

“Each utility shall prepare and follow procedures for conducting inspections and maintenance activities for transmission lines.”³²

C. Procedures and Records Review

1. PG&E’s Applicable Procedures and Records

PG&E’s ETPM Manual, Table 13 (May 12, 2016, Rev: 03)³³ lists PG&E’s inspection frequencies for detailed inspections of 115 kV steel transmission towers.

PG&E procedures require detailed overhead transmission inspections – ground or aerial – at least once every 5 years. PG&E procedures do not require routine detailed climbing inspections but specify conditions that trigger such inspections.³⁴ Inspectors are required to look for abnormalities or circumstances that would negatively impact safety, reliability, or asset life. Per PG&E policy, each abnormal condition identified by PG&E inspectors must be assigned a Priority Code and recorded with a deadline for corrective action, if the problem is not corrected in the field when found.

In addition to detailed inspections, PG&E procedures require annual patrol inspections via walking, driving or flying over the assets. The inspector’s primary responsibility when conducting an overhead electric facility patrol inspection is to visually observe the electric facilities, looking for obvious structural problems or hazards without using measuring devices, tools, or diagnostic tests, and to record that the facilities have been patrolled. Per PG&E policy,³⁵ abnormal conditions that, in the opinion of the inspector, warrant maintenance before the next scheduled patrol or inspection, must be identified, assigned a Priority Code, and recorded with a deadline for corrective action.

The following are some of the relevant PG&E documents that SED reviewed during its investigation:

- Incident reports for the Camp Fire³⁶
- Aerial patrol records from 2014 – 2018³⁷

³² GO 165, Section IV.

³³ Bates PGE-CAMP-CPUC-0000002575.

³⁴ TD-1001M Electric Transmission Preventive Maintenance Manual, Table 13, page 41 (Rev :03).

³⁵ TD-1001M Electric Transmission Preventive Maintenance Manual, Section 3.1, page 51 (Rev :03).

³⁶ PG&E Incident Report No. 181108-9002, 181116-9015, 20-day report.

³⁷ Bates PGE-CAMP-CPUC-0000000443-0000000516.

- Detailed ground inspection reports for 2001, 2003, 2005, 2009 and 2014³⁸
- A list of all patrols and inspections performed on the Caribou-Palermo Transmission Line from January 2001 to October 2018³⁹
- A table of all work orders created by patrols and inspections on the Caribou-Palermo Transmission Line from January 2001 to October 2018⁴⁰
- Records of detailed climbing inspections performed along the Caribou-Palermo Transmission Line from September 19 – November 5, 2018⁴¹
- TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 09/18⁴²
- TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 03/16⁴³
- TD-1001M-JA02 Detailed Climbing Inspection Job Aid (Effective 09/24/2018, Rev: 1)⁴⁴

2. SED's Analysis

a) *Incident Reporting*

PG&E failed to report the outage as potentially related to the second CAL FIRE ignition point, near Concow Road/Rim Road, within the timeframe required by Appendix B of D.06-04-055, as amended by Resolution E-4184. On November 15, 2018, at approximately 1800 hours, CAL FIRE held a press conference during which it identified a "possible second origin related to the Camp incident in the Concow area."⁴⁵ On November 16, 2018, at approximately 1600 hours, PG&E submitted the Electric Incident Report⁴⁶ for this outage potentially related to the additional ignition point identified by CAL FIRE.⁴⁷ This incident report was sent approximately 22 hours after CAL FIRE's press conference, rather than the required 4 hours, a violation of Appendix B of D.06-04-055, as amended by Resolution E-4184.

b) *Patrol Inspections*

During an aerial patrol inspection of the Caribou-Palermo Transmission Line on September 11, 2018, a PG&E crew observed that an insulator hold-down anchor on

³⁸ 3/1/2019 PG&E response to CPUC data request SED-001, Question 4 (for 2009, 2014 reports). 4/2/2019 PG&E response to CPUC data request SED-002, Questions 21 (for 2001, 2003, 2005 reports). PG&E's data request response on 10/25/2019 states, "... the terms 'inspection' and 'patrol' appear to be used interchangeably" until 2005.

³⁹ 4/2/2019 PG&E response to CPUC data request SED-002, Question 20.

⁴⁰ 4/2/2019 PG&E response to CPUC data request SED-002, Question 21.

⁴¹ 4/2/2019 and 6/24/2019 PG&E responses to CPUC data request SED-002, Questions 21.

⁴² Bates PGE-CAMP-CPUC-0000019432.

⁴³ Bates PGE-CAMP-CPUC-0000020061.

⁴⁴ Bates PGE-CAMP-CPUC-0000019292.

⁴⁵ 2/1/2019 PG&E response to CPUC data request SED-001 – Big Bend 1101 Distribution, Question 1.

⁴⁶ Initial Electric Incident Report – PG&E Incident No: 181116-9015, November 16, 2018.

⁴⁷ CAL FIRE News Release, CAL FIRE Investigators Determine Cause of the Camp Fire, dated May 15, 2019.2019; PG&E EIR No. EI181108B and SED Incident No. E20181116-01.

Tower :27/221 had disconnected from a suspension insulator. PG&E assigned the condition a Priority Code E.⁴⁸ As defined in the ETPM Manual, the Priority E designation is for conditions which must receive corrective action within 12 months. SED notes that during additional enhanced inspections that PG&E performed after the Camp Fire, PG&E assigned a Priority A code for a separate broken hold-down insulator hardware on a different tower on the Caribou-Palermo Transmission line.⁴⁹ According to a PG&E lineman who was at the site on November 14, 2018 the hold-down anchor on Tower :27/221 was not broken, but rather had become unscrewed. Nevertheless, the hazardous condition created by an unscrewed hold-down anchor is similar to that created by a broken hold-down anchor. SED concludes that the unscrewed insulator hold-down anchor on Tower :27/221 should have been designated Priority A. This is a violation of GO 95, Rule 18.

c) Detailed Ground Inspections

PG&E procedures require detailed ground inspections at a minimum of once every 5 years. For the Caribou-Palermo Transmission Line, PG&E conducted detailed inspections on August 31, 2009⁵⁰ and August 28, 2014.⁵¹ The Incident Tower is a lattice steel structure. As part of the detailed inspection of the line, PG&E inspected the Incident Tower on August 31, 2009 and August 28, 2014. During the August 31, 2009 inspection, PG&E created a maintenance tag (Line Corrective Notification #103995542) for replacement of 3-bolt connectors, a device joining conductors, which was required to be completed by November 30, 2015.⁵² However, the corrective action was completed on June 18, 2016.⁵³ PG&E did not document the reason for the delayed work, which is a violation of its own policy.⁵⁴

PG&E's failure to follow its procedures in the ETPM Manual by failing to document the factors and reasons that led to the delay in the repair work on the incident tower is a violation of GO 165, Section IV.

d) Detailed Climbing Inspections

SED reviewed PG&E's detailed climbing inspection records from September 19 to November 5, 2018 and found two instances of GO 165, Section IV violations.

⁴⁸ TD-1001M Electric Transmission Preventive Maintenance Manual (Rev: 03). Priority A requires immediate corrective action, and resolution within 1 month. Corrective action is required within 3 months for Priority B, 12 months for Priority E, and 24 months for Priority F.

⁴⁹ For example, Notification 115410939 from March 6, 2018 letter from Meredith Allen of PG&E to Lee Palmer of the CPUC.

⁵⁰ Bates PGE-CAMP-CPUC 0000003928-0000003996.

⁵¹ Bates PGE-CAMP-CPUC 0000003997-0000004056.

⁵² 4/16/2019 PG&E response to CPUC data request SED-006, Question 2.

⁵³ 4/16/2019 PG&E response to CPUC data request SED-006, Question 2.

⁵⁴ TD-1001M Electric Transmission Preventive Maintenance Manual, Section 1.5.3, Page 19 (Rev :03). The section states in part "... notifications that go beyond the due date should be documented as to the factor(s) that led to the notification not being completed on time." LC notification #103995542 was completed more than 6 months late with no documentation explaining the cause of the delay.

As a result of Line Corrective (“LC”) Notification 114730861, which required a detailed [climbing] inspection of all steel structures on the Caribou-Palermo Transmission Line,⁵⁵ PG&E performed detailed climbing inspections on a portion of the towers of the Caribou-Palermo Transmission Line between September 19 and November 5, 2018. Before PG&E could inspect all the structures, the activity was halted by the Camp Fire. The Incident Tower was not one of the structures inspected within this timeframe. The reason for PG&E’s inspections was to assess the condition of its lines for asset management strategy.⁵⁶ SED’s review of PG&E’s records for these inspections found that the inspectors had used an outdated inspection form TD-1001M-FXX 03/16 (Figure 10).⁵⁷ The form that was in effect at the time of the inspections was TD-1001M-F04 (09/18) (Figure 11).⁵⁸ Since PG&E did not follow its own procedure, it is in violation of GO 165, Section IV.

Also, the visible wear on the original runner arms on the Incident Tower (Figures 6 and 7) should have been an indication of the potential for similar problems with wear on the added hanger plates, triggering planned follow-up detailed climbing inspections. SED notes that during additional enhanced inspections that PG&E performed after the Camp Fire, PG&E assigned a Priority A code for 13 towers on the Caribou-Palermo Transmission Line where similar visible wear on the working eyes of the hanger plate was detected.⁵⁹

Regarding the factors that trigger detailed climbing inspections, the ETPM Manual, page 41 states in part:

“Triggers are specific conditions that require follow-up inspections and/or maintenance scheduled by the supervisor, independent of the routine schedule. The following triggers can be applied ... [k]nown, recurring conditions that jeopardize line integrity ...”⁶⁰

However, based on PG&E’s records of detailed climbing inspections that SED reviewed, PG&E did not perform any climbing inspections triggered by specific conditions on the Incident Tower between at least 2001 and the time of the Camp Fire. This omission is a violation of PG&E’s own policy requiring climbing inspection on towers where recurring problems exist. SED notes that a climbing inspection of the Incident Tower during that time could have identified the worn C-hook before it failed, and that its timely replacement could have prevented ignition of the Camp Fire. For these reasons,

⁵⁵ 4/23/2019 PG&E response to CAL FIRE data request.

⁵⁶ 10/18/2019 PG&E response to CPUC data request SED-008, Question 1.

⁵⁷ For example, Bates PGE-CAMP-CF-0000006474.

⁵⁸ Bates PGE-CAMP-CPUC-0000019432.

⁵⁹ Bates PGE-CAMP-CPUC-0000004144, Bates PGE-CAMP-CPUC-0000004297, Bates PGE-CAMP-CPUC-0000004270, Bates PGE-CAMP-CPUC-0000004439, Bates PGE-CAMP-CPUC-0000004232, Bates PGE-CAMP-CPUC-0000004359, Bates PGE-CAMP-CPUC-0000004327, Bates PGE-CAMP-CPUC-0000004371, Bates PGE-CAMP-CPUC-0000004255, Bates PGE-CAMP-CPUC-0000004218, Bates PGE-CAMP-CPUC-0000004430, Bates PGE-CAMP-CPUC-0000004237, Bates PGE-CAMP-CPUC-0000004337.

⁶⁰ TD-1001M Electric Transmission Preventive Maintenance Manual (Rev: 03).

PG&E's failure to conduct detailed climbing inspections of the Incident Tower is a violation of GO 165, Section IV.

e) PG&E's Transmission Infrastructure Patrol and Detailed Inspection Program

SED examined PG&E inspection records from January 2001 to October 2018 and found that PG&E inspected the Caribou-Palermo Transmission Line according to its own required time intervals. However, the inspections were not thorough. The C-hooks from the Incident Tower (Figure 4) and from Tower :24/199 (Figure 9) show significant wear that was not detected as part of PG&E's transmission infrastructure patrol and inspection program. For each of the two towers, this is a violation of GO 95, Rule 31.2, which states in part:

"Lines shall be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition so as to conform with these rules."

D. Adequacy of PG&E's Transmission Inspection and Maintenance Programs Before the Camp Fire

Public Utilities Code Section 451 states in part:

Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities ... as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.

As set forth below, SED's investigation of the Camp Fire found that the identified shortcomings in PG&E's inspection and maintenance of the incident tower were not isolated, but rather indicative of an overall pattern of inadequate inspection and maintenance of PG&E's transmission facilities.

1. PGE's Electric Transmission Preventive Maintenance Manual

PG&E's ETPM Manual contains procedures for PG&E's transmission inspection and maintenance program. The version at the time of the Camp Fire incident and the previous two versions of the manual require detailed inspection (ground or aerial) every five years for transmission lines operating below 500 kV. All overhead transmission line facilities are patrolled annually. Detailed climbing or aerial lift inspection, while not routine, are required to be performed if triggered by specific conditions listed in the procedure.

The routine patrols and the ground and aerial inspections have been ineffective in finding cold-end hardware defects, which shows that the current and prior inspection and maintenance programs were inadequate.

Of particular importance, regarding the C-hook that failed and led to the Camp Fire, PG&E's historical patrol and detailed inspection forms did not specify or record results of cold-end hardware assessments. And climbing inspection forms did not contain assessment fields for such hardware until September 2018. See Figure 12 and Figure 13. This raises the question of whether inspectors were evaluating cold-end hardware even when they performed climbing inspections. As of September 2018, PG&E has made improvements and its current climbing inspection form includes assessment fields for cold-end hardware.

2. Enhanced Inspections Before and After the Camp Fire

PG&E performed detailed climbing inspections on a portion of the towers of the Caribou-Palermo Transmission Line, but not the Incident Tower, between September 19 and November 5, 2018.

In December 2018, PG&E launched what it called a Wildfire Safety Inspection Program (WSIP),⁶¹ which included enhanced safety inspections of transmission, distribution, and other facilities in or near high fire threat areas. The inspections included climbing and/or drone inspections of overhead transmission facilities. The WSIP inspections, which were not part of PG&E's routine inspection program described in the ETPM Manual, found over 5,000 hazardous conditions that resulted in Priority A or Priority B tags on the inspected transmission lines, none of which had been identified previously by PG&E's routine patrol and detailed inspections.⁶²

PG&E stated that it also performed climbing inspections of the Caribou-Palermo Transmission Line on or after November 8, 2018 but before the WSIP was launched.⁶³ As a result of the climbing inspections that PG&E performed after the Camp Fire but before WSIP, and the inspections performed as part of the WSIP program, PG&E found problems on the Caribou-Palermo Transmission line that led to 29 Priority A tags,⁶⁴ and also a total of 495 problems on the line that warranted Priority B, E, or F tags.⁶⁵

In addition to the problems found on the Caribou-Palermo Transmission Line, SED notes in particular that PG&E's WSIP inspections found hazardous conditions on 22 towers of the Ignacio-Alto-Sausalito 60 kV Transmission Line that required emergency maintenance, including replacement of at least 10 steel lattice towers and reinforcement of 12 steel lattice towers.⁶⁶

⁶¹ PG&E's presentation of Wildfire Safety Inspections, CPUC SED Meeting, June 18, 2019.

⁶² PG&E's presentation of Electric Operations Prioritization to SED on August 20, 2019.

⁶³ March 6, 2019 letter from Meredith Allen of PG&E to Lee Palmer of the CPUC; March 20, 2019 letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC.

⁶⁴ Id.

⁶⁵ March 20, 2019 letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC.

⁶⁶ August 16, 2019 PGE-CPUC_06072019-DR_IgnacioAltoSausalito_Q04, PG&E's response to Data Request Question 4.

3. Exponent Study and SED Conclusions

PG&E retained Exponent to conduct an independent analysis of the cause of the relatively high number of high priority tags that the enhanced WSIP inspections found on the Caribou-Palermo Transmission Line compared to similar lines. Exponent has identified several items of note, including:

- From 2001 to November 2018, the Caribou-Palermo Transmission Line underwent patrol and detailed ground inspections at frequencies similar to the inspections of comparable transmission lines identified by Exponent. PG&E's routine patrol and detailed ground inspections yielded comparable numbers of normalized⁶⁷ high-priority tags for Caribou-Palermo and comparison lines.⁶⁸ However, the enhanced WSIP inspections found a much higher number of high priority tags for the Caribou-Palermo Line, relative to the comparable lines.⁶⁹

Based on these findings, SED concludes that PG&E's inspection and maintenance program before the Camp Fire was inadequate in identifying and correcting defects in the Caribou-Palermo Transmission Line.

- Cold-end insulator hardware-related problems were responsible for the highest number of Priority A tags that PG&E found post Camp Fire on the Caribou-Palermo Transmission Line.⁷⁰

Based on these findings, SED concludes that cold-end hardware defects were not being identified during routine inspection and maintenance activities, which is of particular concern because equipment failure of this type caused the Camp Fire.

- Tower foundation-related problems on the Caribou-Palermo Transmission Line accounted for the greatest number of Priority B tags that PG&E found on the line post Camp Fire.⁷¹ Priority B tags require corrective action to be performed within 3 months.⁷² Photographs show not only a buried foundation

⁶⁷ To best compare lines of different lengths with different numbers of structures, tag counts were normalized by dividing the number of tags by the number of single circuit steel lattice towers.

⁶⁸ Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 76, Conclusion 10.

⁶⁹ Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 75, Conclusion 1.

⁷⁰ Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 75, Conclusion 3.

⁷¹ Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 75, Conclusion 3.

⁷² TD-1001M Electric Transmission Preventive Maintenance Manual, Table 7, page 18 (Rev :03).

but also buried steel components.⁷³ This type of soil coverage can increase the risk of corrosion of steel components.⁷⁴

The amount of soil movement shown in the photographs develops over time, so SED concludes that these problems were either undetected or ignored during routine inspections and maintenance.

- The Caribou-Palermo, Bucks Creek-Rock Creek, and Cresta-Rio Oso lines are located in the North Fork Feather River Canyon, and each of these lines exhibited high-priority cold-end hardware-related tag counts more than three times higher than the next highest comparison line when normalized for the number of steel lattice towers.⁷⁵ While the specific cause(s) of the cold-end hardware-related problems have not been identified, the Caribou-Palermo and the other North Fork Feather River Canyon lines appear to have some unique factors, such as exposure to high duration wind, structural characteristics, age, and/or historical inspection methodologies⁷⁶ that make them more susceptible to cold-end hardware-related problems.

Regardless of the specific root causes of the problems, the fact is that PG&E had not identified this vulnerability. SED concludes that this indicates the inadequacy of PG&E's inspection and maintenance program to identify and account for local conditions in the North Fork Feather River Canyon.

4. SED's Conclusion of the Adequacy of PG&E's Transmission Inspection and Maintenance Programs

The initial climbing inspections after the Camp Fire, the enhanced WSIP inspections, and Exponent findings all demonstrate that PG&E's inspection and maintenance program was inadequate in identifying and correcting defects in its transmission lines, and inadequate in identifying local conditions that might trigger a need for enhanced inspection and maintenance activities. SED concludes that PG&E's transmission inspection and maintenance program prior to the Camp Fire was inadequate to ensure that PG&E's transmission lines, including the Caribou-Palermo Transmission Line, were in good condition to allow them to operate in a safe manner, in violation of Public Utilities Code Section 451.

⁷³ March 20, 2019 letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC.

⁷⁴ Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 20.

⁷⁵ Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 75, Conclusion 5.

⁷⁶ Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 76, Conclusion 14.

IV. Figures

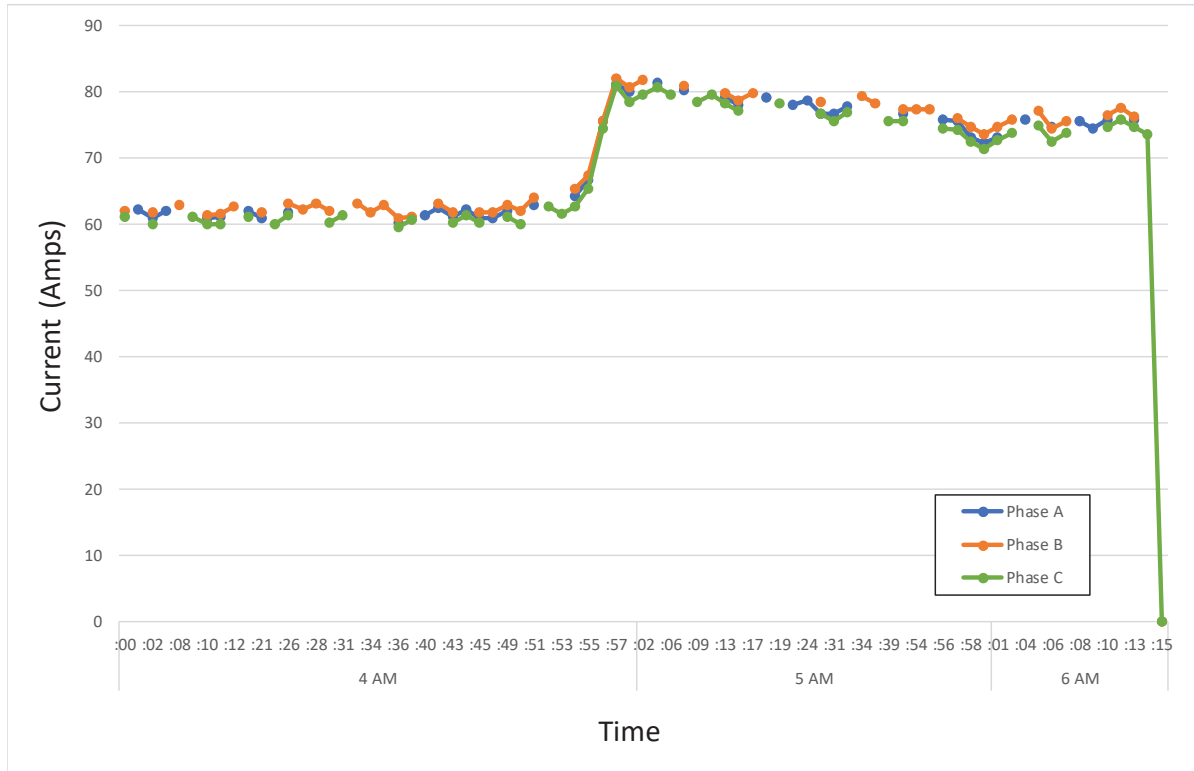


Figure 1: Chart of SCADA data recorded at Circuit Breaker 152 on the Caribou-Palermo 115 kV Transmission Line just before the incident.⁷⁷

⁷⁷ For certain times in the SCADA data provided by PG&E, more than one load reading was recorded for certain phases. SED used the minimum load reading for each phase to produce Figure 1.

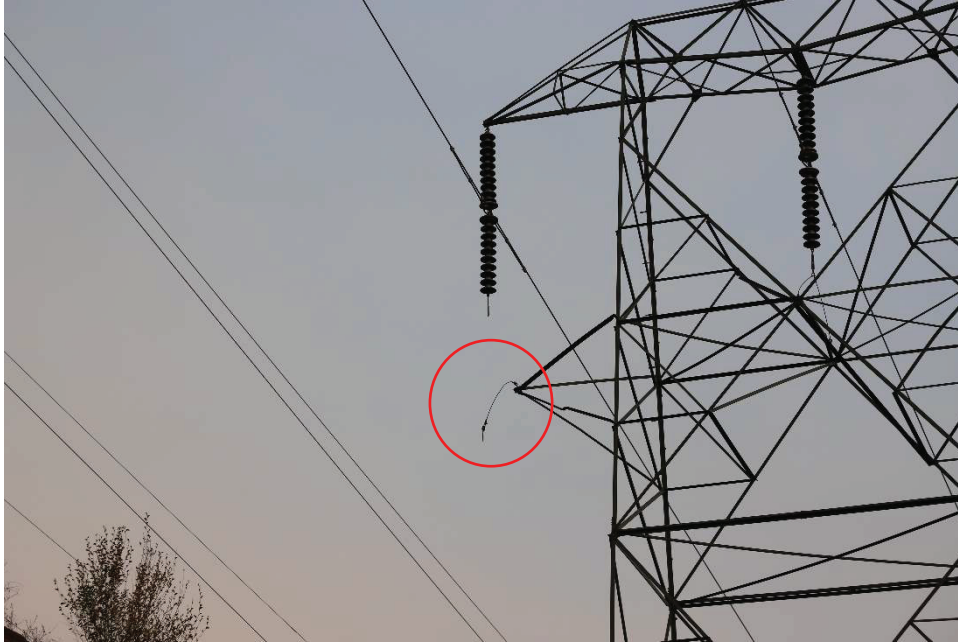


Figure 2. At Tower :27/221, an insulator hold-down anchor was disconnected. Photo provided by PG&E.⁷⁸



Figure 3. At the Incident Tower, an insulator detached from the hanger plate and hung upside down. Photo provided by PG&E.⁷⁹

⁷⁸ 1/17/2019 PG&E response to CPUC data request SED-003 (IMG_0038).

⁷⁹ 1/17/2019 PG&E response to CPUC data request SED-003 (IMG-0123).



Figure 4. The failed C-hook on the Incident Tower. Photo provided by PG&E.⁸⁰



Figure 5. Flash marks on the transposition jumper and steel member on the Incident Tower. Photo provided by PG&E.⁸¹

⁸⁰ 1/17/2019 PG&E response to CPUC data request SED-003 (IMG_0204).

⁸¹ 1/17/2019 PG&E response to CPUC data request SED-003 (PB130051).



Figure 6. The left runner arm and the added hanger plate from the Incident Tower.⁸²



Figure 7. The right runner arm and the added hanger plate from the Incident Tower prior to removal from the tower for evidence. Photo provided by PG&E.⁸³

⁸² Photo taken by Chris Lee of the CPUC on 11/14/2018.

⁸³ 1/17/2019 PG&E response to CPUC data request SED-003 (PB130077).

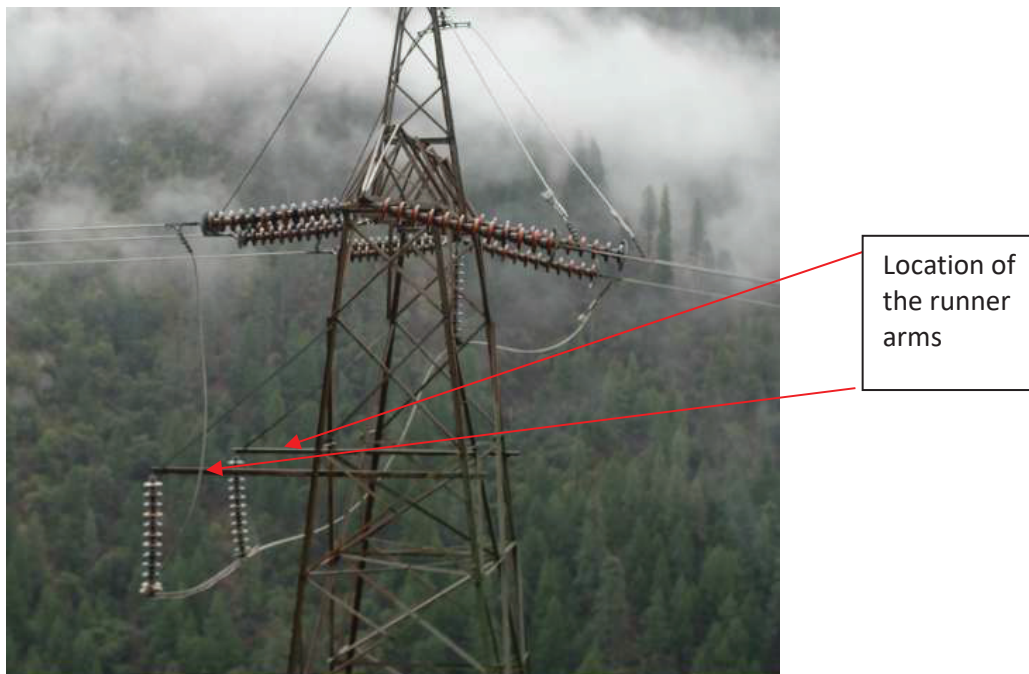


Figure 8. Typical location of runner arms on transmission towers similar to the Incident Tower. This is PG&E Tower :20/160 of the Caribou-Palermo 115 kV Transmission Line.⁸⁴



Figure 9. The right phase suspension insulator C-hook removed from Tower :24/199.⁸⁵

⁸⁴ Photo taken by Andie Biggs of the CPUC on 3/28/2019.

⁸⁵ Photo taken by Chris Lee of the CPUC on 3/29/2019.

Pacific Gas and Electric Company
Steel Structure Detailed Climbing Inspection
(Non-500 kV Structures)

Electric Trans.
ETPM Form
TD-1001M-FXX
03/16

The 500 kV Tower Line Climbing Inspection Form provides a ready reference to ensure a thorough inspection.

- It is intended that the items on Page 2 of the form will be inspected during the climbing inspection.
- Refer to the ETPM Manual for guidance regarding the Facility, Damage, and Action

Structure #: 10/86 Line Name: CARIBOU-PALERMO Voltage: 115 SAP Structure ID #: 40816572
Date Inspected: 10/30/18 Inspected By: [Signature] ETL #: 3190
Order #: 43382525 Notification Required: No ☒ Yes ☐ Notification #:
Comments: Hiker: [Redacted]
Inspector Review: [Signature] LAN ID: [Redacted] Date: 10/30/18
Supervisor Review: [Signature] LAN ID: [Redacted] Date: [Redacted]

PRIORITY CODES

| | |
|-----|--|
| N/A | Does not apply to this location |
| NP | No problem found |
| PC | *Using Priority Code requires a Condition and Action to be documented* |
| A | Problem corrected at the time of inspection |
| B | Perform work within 3 months |
| E | Perform work within 12 months |
| F | Perform work within 24 months |

INSTRUCTIONS

- The Facility, Damage, and Action Codes (FDA), are to be in accordance with the Electric Transmission Preventive Maintenance Manual.
- Send completed forms to:
Tower Dept. Davis
500Kv Inspection file
316 "L" Street,
Davis, CA 95616

Page 1 of 3

PGE-CAMP-CF-0000006474

Pacific Gas and Electric Company
Steel Structure Detailed Climbing Inspection
(Non-500 kV Structures)

Electric Trans.
ETPM Form
TD-1001M-FXX
03/16

| CHECK THIS ITEM | Condition Found | | | | | | Damage | Action | COMMENTS |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------|----------|
| | N/A | NP | PC | A | B | E | | | |
| ANCHOR FOUNDATION | | | | | | | | | |
| Concrete is at least 1" above ground line | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Concrete is not cracked or delaminated | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Concrete is sealed and water proofed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Earth around anchors is not eroded | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Anchors have no evidence of pull out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Do anchors consist of bolts or rods? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| GUY WIRE | | | | | | | | | |
| Guy is properly tensioned | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Tumbuckle punched | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Proper guy cable and hardware used | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6" of travel left in tumbuckle | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Platform cross bars properly installed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Guy hole drilled properly | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Platform gages in threads | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Correct number of guys | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Automatic Guy Splice Present | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| STRUCTURE FOUNDATIONS | | | | | | | | | |
| Concrete is at least 1" above ground line | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Concrete is not cracked or delaminated | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Rebar Exposed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Concrete is sealed and water proofed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Earth around structure is not eroded | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Direct loaded steel grillage | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Plates exposed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Plates reinforced/encased | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| STRUCTURE/STEEL | | | | | | | | | |
| Tower is plumb and not leaning | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Tower legs straight, not bowed or twisted | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| High voltage signs per E.C. 322188 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Tower no. & line name per E.C. 322188 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Anti-climbing guard per E.C. 322188 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Climbing steps installed correctly & are in good condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Broken or bent members | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Loose or missing steel members | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Loose bolts | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Missing bolts | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| All bolt threads are double punched | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Galvanized finish is OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Galvanneal applied to unfinished areas | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Working eyes and shackle free of wear | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Bird nests present | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Cell antenna attachments | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Unauthorized attachments | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Bird mitigation installed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Bird Mitigation recommended | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |

Page 2 of 3

PGE-CAMP-CF-0000006475

Figure 10. Steel /Structure Detailed Climbing Inspection (Non-500 kV Structures) form used during climbing inspections conducted on 10/30/2018.



**TD-1001M-F04 Steel Structure Detailed Climbing
Inspection Form (Non-500kV Structures)**

ETPM Form
Elec. Trans.
09/18

The "Steel Structure Detailed Climbing Inspection Form" for non-500kV structures provides a ready reference to ensure a consistent and thorough inspection. TD-1001M-J04 provides a reference to aid the inspector in recording line-related component deficiencies that may be noted during the inspection. It is intended that the checklist items on Pages 2-5 of the form will be inspected during the climbing inspection.

| | | | |
|---------------------|------------------------|--|---------------------|
| Structure #: | Line Name: | Voltage: | SAP Structure ID #: |
| Latitude: | Longitude: | Structure Type: | Foundation Type: |
| Date Inspected: | Inspected By: | ETL #: | |
| Inspection Order #: | Notification Required: | No <input type="checkbox"/> Yes <input type="checkbox"/> | Notification #: |
| Comments: | | | |
| Inspector Review: | (Signature) | LAN ID: | Date: |
| Supervisor Review: | (Signature) | LAN ID: | Date: |

PRIORITY CODES

| | |
|-----|--|
| N/A | Does not apply to this location |
| NP | No problem found |
| | *Using Priority Code requires a Condition and Action to be documented* |
| PC | Problem corrected at the time of inspection |
| A | Perform work immediately |
| B | Perform work within 3 months |
| E | Perform work within 12 months |
| F | Perform work within 24 months |

INSTRUCTIONS

- Inspect the structure using the form to record issues for each component. Determine the condition of each component. Consider all conditions to determine the appropriate Priority Code for any Notification, if required.
 - 5 = Heavy Damage with Safety Concerns
 - 4 = Heavy Damage
 - 3 = Moderate Damage
 - 2 = Light Damage
 - 1 = No Visible Damage
- Completed forms and structure photograph shall be distributed as follows:
 - One copy to be retained by the Tower department.
 - One copy to the local T-Line first line supervisor if line hardware / component work is required.

1

PGE-CAMP-CPUC-0000019432



**TD-1001M-F04 Steel Structure Detailed Climbing
Inspection Form (Non-500kV Structures)**

ETPM Form
Elec. Trans.
09/18

- Inspection crew to create notification (if required). Notification to be attached to inspection report and Structure photograph* to be added to SAP and ET-GIS.

| CHECK THIS ITEM | CHECK APPLICABLE | COMMENTS |
|---|---|----------|
| ANCHOR FOUNDATION | | |
| Concrete 6" or less above ground line (or steel interface buried) | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Concrete cracked or deteriorated | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Stub in concrete not sealed and water proofed | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Anchor rod damage (e.g. corrosion, cracked, bent) | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Earth around anchors eroded, soil movement, slide | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Anchors have evidence of pull out? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Do anchors consist of "loops" or rods? | <input type="checkbox"/> Loops <input type="checkbox"/> Rods <input type="checkbox"/> N/A | |
| TSP Anchor bolts in poor conditions | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Anchor Condition | <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> N/A | |
| GUYS | | |
| Guys are loose | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Guys are over-tensioned | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Turnbuckle not punched | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Improper guy cable and hardware used | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| 6" or less of travel left in turnbuckle | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Preform cross ties not properly installed | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Guy tails not clipped properly | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Preform grips not in thimbles | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Guys in poor condition (e.g. corrosion, broken) | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Guys insulator in poor condition | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Guy marker missing | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Automatic guy splice present (for records purpose) | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | |
| Guy Condition | <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> N/A | |

Condition Code: 5=Heavy Damage w/Safety Concerns; 4=Heavy Damage; 3=Moderate Damage; 2=Light Damage; 1=No Visible Damage; N/A=Not Present

2

PGE-CAMP-CPUC-0000019433

Figure 11. TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures), Effective 09/18.

**TD-1001M-F04 Steel Structure Detailed Climbing
Inspection Form (Non-500kV Structures)**

 Elec. Trans.
ETPM Form
TD-1001M-F04
03/16

| CHECK THIS ITEM | Condition Found | | | | | | | Damage | Action | Comments |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------|--------|----------|
| | N/A | NP | PC | A | B | E | F | | | |
| CONDUCTOR | | | | | | | | | | |
| Conductor is in good condition, no broken strands or birdcaging at the connectors or in the span | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| All dampers are present? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| All dampers are in good condition, not fatigued with drooping messenger or missing weight | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| OVERHEAD GROUND WIRE | | | | | | | | | | |
| Shield wire or OPGW is grounded properly | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| Shield wire is in good condition, no broken strands at the connectors or in the span | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| All dampers are in present? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| All dampers are in good condition? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| HARDWARE & INSULATORS | | | | | | | | | | |
| Insulator cap(s) are free of corrosion | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| All insulators are intact and in good condition, not chipped or broken? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| VEGETATION | | | | | | | | | | |
| Vegetation impact foundation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| Vegetation impact structure | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | |

 Figure 12. Detailed Climbing Inspection Form (03/16)⁸⁶
⁸⁶ Bates PGE-CAMP-CPU-0000020061, page 3.

| HARDWARE & INSULATORS | | | |
|--|------------------------------|-----------------------------|---|
| Insulator cap(s) show signs of corrosion? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Suspension / Dead-end conductor hardware hot-end/shoe assembly in poor condition | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Suspension / Dead-end conductor hardware cold-end in poor condition | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Insulator hanger plate in poor condition? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are insulators in poor condition and/or contaminated? (Chipped, cracked, broken, dirty or "flashed") | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Insulators are out-of-plumb | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Grading/Corona rings in poor condition | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Clamps in poor condition | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Connectors in poor condition | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Hardware & Insulators Condition | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> N/A |

Figure 13. Detailed Climbing Inspection Form (09/18)⁸⁷

V. Conclusion

Based on the evidence reviewed, SED's investigation has identified 12 violations of Commission General Orders and regulations and the California Public Utilities Code by PG&E:

1. PG&E failed to replace or reinforce the C-hook on the Incident Tower before its safety factor was reduced to less than two-thirds of the safety factor specified in Rule 44.1, a violation of **GO 95, Rule 44.3**.
2. The failure of the C-hook supporting the transposition jumper on the Incident Tower demonstrates that PG&E did not maintain the Incident Tower for its intended use and regard being given to the conditions under which it was to be operated; therefore, it is a violation of **GO 95, Rule 31.1**.
3. PG&E failed to inspect the Incident Tower thoroughly. Through its inspections, it failed to detect an immediate Safety Hazard or Priority A condition on the incident

⁸⁷ Bates PGE-CAMP-CPUC-0000019432, page 6.

C-hook which required replacement before its safety factor fell below 1.33, prior to the Camp Fire. This is a violation of **GO 95 Rule 31.2**.

4. PG&E failed to follow its procedures in the ETPM Manual by failing to document the factors and reasons that led to the delay in the repair work on the Incident Tower which was scheduled to be completed by November 2015; however, it was delayed until June 2016. PG&E did not document the reason for the delayed work, which is a violation of its own policy; therefore, a violation of **GO 165, Section IV**.
5. PG&E failed to conduct detailed climbing inspections when conditions to trigger climbing inspections were evident as specified in PG&E's procedures. Wear on the original working eyes that remained on the Incident Tower is an indication of a known condition with potential to recur on the added hanger plates with working eyes, which should have triggered detailed climbing inspection to examine the added hanger plates. This is a violation of **GO 165, Section IV**.
6. The condition of the C-hook (material loss > 50%) supporting the transposition jumper on Tower :24/199 demonstrates that PG&E did not maintain Tower :24/199 for its intended use; therefore, it is a violation of **GO 95, Rule 31.1**.
7. PG&E failed to inspect Tower :24/199 thoroughly. Through its inspections, it failed to detect a Safety Hazard or Priority A condition, which requires immediate response until the condition no longer presents a potential hazard. Based on ETPM Manual, Table 8 (Rev :03), the amount of wear (> 50%) on the C-hook on Tower :24/199 warranted Priority Code A. This is a violation of **GO 95 Rule 31.2**.
8. Based on PG&E EPTM Manual, Table 8 (Rev :03), the amount of material loss (> 50%) on the C-hook on Tower :24/199 warranted Priority Code A and immediate response until the condition no longer presents a potential hazard. PG&E's failure to detect and correct this Priority A condition as specified in PG&E's procedures is a violation of **GO 165, Section IV**.
9. PG&E assigned an incorrect priority for an immediate Safety Hazard represented by a disconnected insulator hold-down anchor. On September 11, 2018, a PG&E crew observed that an insulator hold-down anchor on Tower :27/221 had come apart. PG&E assigned the condition a Priority Code E. As defined in the ETPM Manual, the Priority E designation is for conditions which must receive corrective action within 12 months. However, several broken insulator hold-down anchors found during enhanced inspections after the Camp Fire were assigned Priority A. Incorrect prioritization is a violation of **GO 95, Rule 18**.
10. PG&E failed to follow its procedure by using an outdated inspection form during the detailed climbing inspections that PG&E conducted from September 19 to

November 5, 2018. It used TD-1001M-FXX that was implemented in March 2016, even though the form, effective as of September 2018, was TD-1001M-F04. Since PG&E did not follow its own procedure, it is in violation of **GO 165, Section IV**.

11. PG&E failed to report the reportable incident on Big Bend 1101 12kV Distribution Circuit in a timely manner. After learning of a possible second origin of fire through a CAL FIRE press conference on November 15, 2018, at approximately 1800 hours, PG&E submitted an electric incident report to the CPUC on November 16, 2018, at approximately 1600 hours, which was 22 hours later. This is a violation of **Appendix B of D.06-04-055, as amended by Resolution E-4184**, which requires reporting within 4 hours outside of normal working hours.
12. PG&E failed to maintain an effective inspection and maintenance program to identify and correct hazardous conditions on its transmission lines. This is a violation of **PU Code Section 451**. SED determined that PG&E's transmission inspection and maintenance program prior to the Camp Fire was inadequate to ensure that the Caribou-Palermo Transmission Line in particular, transmission lines in the North Fork Feather River Canyon, or PG&E's transmission lines in general were in good condition to furnish and maintain service, as is necessary to promote the safety and health of its patrons and the public.

If SED becomes aware of additional information that could modify SED's findings in this Incident Investigation Report, SED may re-open the investigation; if so, SED may modify this report and take further actions as appropriate.

VI. Attachments

Attachment A – Definitions

Attachment B - CAL FIRE News Release on May 15, 2019

Attachment C - PG&E Incident Report No. 181108-9002

Attachment D - PG&E Incident Report No. 181116-9015

Attachment E - PG&E's 20 Day Report, December 11, 2018

Attachment F - 2/1/2019 PG&E response to CPUC data request SED-001, Question 1 (timeline of the events)

Attachment G - Evidence Collection List, Update 12/18/2018, Bates PGE-CAMP-CPUC-0000000001

Attachment H - 11/5/2019 PG&E response to CPUC data request SED-010, Question 1 (list of evidence collected on March 28, 2019)

Attachment I - 11/5/2019 PG&E response to CPUC data request SED-010, Question 2 (list of evidence collected on March 29, 2019)

Attachment J - PG&E Response to Notice Re California Wildfires - Case 3:14-cr-00175-WHA, Document 956, Exhibit A, Filed 12/31/18

Attachment K - TD-1001M Electric Transmission Preventive Maintenance Manual, Rev: 03, Bates PGE-CAMP-CPUC-0000002535

Attachment L - March 6, 2019 letter from Meredith Allen of PG&E to Lee Palmer of the CPUC

Attachment M - March 20, 2019 letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC

Attachment N - Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019

Attachment O - 2/1/2019 PG&E response to CPUC data request SED-001 Big Bend Question 1

Attachment P - TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 09/18, Bates PGE-CAMP-CPUC-0000019432

Attachment Q - TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 03/16, Bates PGE-CAMP-CPUC-0000020061

Attachment R - TD-1001M-JA02 Detailed Climbing Inspection Job Aid (Effective 09/24/2018, Rev: 1), Bates PGE-CAMP-CPUC-0000019292

Attachment S - Aerial patrol records from 2018, Bates PGE-CAMP-CPUC-0000000516

Attachment T - LC Notification # 103995542, Bates PGE-CAMP-CPUC-0000000553

Attachment U - LC Notification # 105375996, Bates PGE-CAMP-CPUC-0000017701

Attachment V – PGE-CAMP-CPUC-0000004159 (enhanced inspection, disconnected insulator hold-down anchor)

Attachment W – PGE-CAMP-CPUC-0000004188 (enhanced inspection, disconnected insulator hold-down anchor)

Attachment X - 4/16/2019 PG&E response to CPUC data request SED-006 Caribou-Palermo 115 kV Transmission, Question 2 (PG&E records do not

identify the reason that the replacement work identified in LC Notification 103995542 was completed late)

Attachment Y - 10/25/2019 PG&E response to CPUC data request SED-009.
Question 1(Detailed ground inspection reports for 2001, 2003, 2005)

Attachment Z - 3/1/2019 PG&E response to CPUC data request SED-001,
Question 4(Detailed ground inspection reports for 2009 and 2014)

Attachment AA - 10/18/2019 PG&E response to CPUC data request SED-009,
Question 2 (Detailed Climbing Records from September 19, 2018 – November 5, 2018)

Attachment AB - 10/8/2019 PG&E response to CPUC data request SED-008,
Question 1 (Detailed climbing inspections from September 19, 2018 to November 5, 2018 were performed to assess the condition of the transmission line for asset management strategy)

Attachment AC – PG&E's Wildfire Safety Inspection Program Compliance Plan

Exhibit 70

Public Incident Investigation Report

CALIFORNIA PUBLIC UTILITIES COMMISSION Safety and Enforcement Division Electric Safety and Reliability Branch

Incident Investigation Report

Report Date: March 29, 2017

Incident Number: E 20150916-01

Utility: Pacific Gas and Electric Company (PG&E)

Date and Time of the Incident: 9/9/2015, 2:26:00 PM

Location of the Incident: 17704 Butte Mountain Road
Jackson, CA
County: Amador

Summary of Incident:

On September 9, 2015, the "Butte Fire", ignited at 17704 Butte Mountain Road in the city of Jackson in Amador County. The fire burned 70,868 acres, destroyed 921 structures (549 homes, 368 outbuildings, and 4 commercial properties), damaged 44 structures, and resulted in two "indirect" civilian fatalities and one injury.

The investigation found that a gray pine contacted a PG&E 12 kV overhead conductor and caused an ignition that started the fire.

Fatality / Injury: There were two fatalities and one injury.

Property Damage: \$108,976,189

Utility Facilities involved: Electra 1101, 12 kV Circuit

Public Incident Investigation Report

Witnesses:

| | Name | Title | Phone |
|----|-------------------|---|--------------|
| 1 | Ryan Yamamoto | CPUC Investigator | 415-703-2192 |
| 2 | [REDACTED] | PG&E - Sr. Compliance Specialist | [REDACTED] |
| 3 | [REDACTED] | PG&E - Supervisor - Regulatory Compliance | [REDACTED] |
| 4 | [REDACTED] | PG&E - Sr. Director - Transmission | |
| 5 | Gianni Muschetto | Battalion Chief, California Department of Forestry and Fire Protection (CAL FIRE) | 530-708-2720 |
| 6 | David Wiseman | CAL FIRE Attorney | 916-657-0444 |
| 7 | [REDACTED] | PG&E - Distribution Engineer, Supervisor | |
| 8 | [REDACTED] | PG&E Supervisor - Business Finance | |
| 9 | [REDACTED] | PG&E - Vegetation Management Supervisor | |
| 10 | [REDACTED] | PG&E - Principal VM Program Manager | |
| 11 | [REDACTED] | PG&E - Vegetation Management Sr. Manager | |
| 12 | [REDACTED] | PG&E - Vegetation Management QA Supervisor | |
| 13 | [REDACTED] | PG&E - Electric Distribution Supervisor | |
| 14 | [REDACTED] | PG&E - Transmission Line Superintendent | |
| 15 | [REDACTED] | PG&E - Emergency Management Director | |
| 16 | [REDACTED] | PG&E - Principal Meteorologist | |
| 17 | [REDACTED] | PG&E - Manager Electric Mapping/GIS | |
| 18 | [REDACTED] | PG&E - Distribution Operations Supervisor | |
| 19 | [REDACTED] | PG&E - Vegetation Management Supervisor | |
| 20 | [REDACTED] | PG&E - Compliance Supervisor | |
| 21 | [REDACTED] | PG&E - Chief Counsel | |
| 22 | [REDACTED] | PG&E - Investigator | |
| 23 | [REDACTED] | PG&E - Supervisor | |
| 24 | John Wasmer | Director of Operations - ACRT | |
| 25 | [REDACTED] | PG&E - Manager, Emergency Management & Public Safety | |
| 26 | Calaveras County | Coronor's Office | |
| 27 | Alan Jang | Jang & Associates, LLP | |
| 28 | Michael T Mahoney | Arborist for CAL FIRE | |

Public Incident Investigation Report

Evidence:

| | Source | Description |
|----|------------------------|---|
| 1 | PG&E | Initial Online Incident Report |
| 2 | CPUC | Data Request #1, 9/23/15 |
| 3 | PG&E | Data Request Response #1, 10/7/15, 10/8/15, 10/12-14/15 |
| 4 | CPUC | Field visit, 9/18/15 |
| 5 | CPUC | Evidence Inspection, 9/22/15 |
| 6 | CPUC | Data Request #2, 9/25/15 |
| 7 | PG&E | Data Request Response #2, 10/12/15, 10/14/15 |
| 8 | PG&E | Tree Removal Notice, 10/19-20/15, 10/23/15 |
| 9 | CAL FIRE | Investigation Report, 4/25/16 |
| 10 | CPUC | Data Request #3, 6/6/16 |
| 11 | PG&E | Data Request Response #3, 6/17/16 |
| 12 | CPUC | Data Request #4, 6/17/16 |
| 13 | PG&E | Data Request Response #4, 6/20/16 |
| 14 | CPUC | Field visit, 7/11/16 |
| 15 | CPUC | Data Request #5, 8/11/16 |
| 16 | PG&E | Data Request Response #5, 10/28/16 |
| 17 | CPUC | Data Request #6, 11/3/16 |
| 18 | PG&E | Data Request Response #6, 11/18/16 |
| 19 | CPUC | Data Request #7, 1/18/17 |
| 20 | PG&E | Data Request Response #7, 1/27/17, 2/6/17 |
| 21 | CPUC | Data Request #8, 1/19/17 |
| 22 | PG&E | Data Request Response #8, 1/20/17, 1/27/17 |
| 23 | CPUC | Data Request #9, 1/30/17 |
| 24 | PG&E | Data Request Response #9, 2/15/17 |
| 25 | CPUC | Data Request #10, 1/31/17 |
| 26 | PG&E | Data Request Response #10, 2/1/17 |
| 27 | CPUC | Data Request #11, 2/14/17 |
| 28 | PG&E | Data Request Response #11, 2/17/17 |
| 29 | CPUC | Data Request #12, 2/16/17 |
| 30 | PG&E | Data Request Response #12, 2/23/17 |
| 31 | CPUC | Data Request #13, 2/22/17 |
| 32 | PG&E | Data Request Response #13, 2/24/17 |
| 33 | CPUC | Follow-up question for DR #11, 2/21/17 |
| 34 | Jang & Associates, LLP | Cross-complaint document, 1/12/17 |
| 35 | PG&E | Follow-up Response for DR #11, 3/2/17 |
| 36 | Michael T Mahoney | Arborist Report, 2/15/16 |

Public Incident Investigation Report

Background

On January 17, 2014, Governor Edmund G. Brown Jr. proclaimed a State of Emergency and directed state officials to take actions to mitigate conditions that could result from a drought and cause a fire. On June 12, 2014, the CPUC issued Resolution ESRB-4 directing all Investor Owned Electric Utilities to take remedial measures to reduce the likelihood of fires started by or threatening utility facilities.

On September 9, 2015 at approximately 1446 hours, a 44-foot gray pine tree contacted an overhead conductor of PG&E's Electra 1101 12 kV circuit located in the vicinity of the residence property at 17704 Butte Mountain Road in the city of Jackson in Amador County (see figure 1), starting the "Butte Fire". The fire burned 70,868 acres, destroyed 921 structures (549 homes, 268 outbuildings, and 4 commercial properties), damaged 44 structures, and resulted in two civilian "indirect" fatalities and one injury. Both death victims were residents of Calaveras County who refused to evacuate the area as recommended by local authorities. The coroner's reports indicated that the cause of death for both victims was "consumption by fire (residential conflagration)". The fire caused power interruptions to 3644 customers for 16,651,071 customer minutes, 6377 customers for 10,053,920 customer minutes and 4246 customers for 23,519,468 customer minutes. The 12 kV conductor did not fail and fall to the ground.

Weather station KCAJACKS6, located approximately four (4) miles northwest from the incident location, recorded average wind speed and gust of 1 mph and 7 mph, respectively. The ambient condition around the time of ignition was 102 degrees Fahrenheit and dry.¹



Figure 1: Ignition point/location

On September 16, 2015 at 1547 hours, seven days after the fire started, PG&E reported the incident to the Safety and Enforcement Division (SED).

¹ Per Weather Underground (www.wunderground.com)

PG&E's Vegetation Program at the Incident Location

PG&E performs annual patrols of all primary and secondary distribution lines. PG&E schedules circuits covered by routine patrol to be pruned on an annual basis by the Vegetation Program Manager. PG&E also uses a combination of LiDAR² and spectral imagery to allow Vegetation Management to identify hazardous trees in high fire danger areas. Trees identified using these technologies are then inspected from the ground and abated as necessary.

PG&E conducted Catastrophic Event Memorandum Account (CEMA) related inspections at the incident location on August 12, 2014 and August 23, 2014. CEMA is an account used to recover the costs associated with the restoration of service and facilities affected by catastrophic events that have been declared disasters or states of emergency by federal or state authorities. The reasonable balance in the CEMA will be recovered in rates after the CPUC reviews and audits the recorded CEMA balance.

PG&E used two contractors as part of its vegetation management. ACRT Inc. conducted the pre-inspection work and Trees Inc. conducted the vegetation management work. Pre-inspection is conducted by a Consulting Utility Forester (CUF), a qualified individual who inspects all vegetation that has the potential to grow into or fall into the primary conductors before the next annual trim and vegetation that is currently causing strain/abrasion of the secondary conductors.

The CUF has at least two years' experience in line clearance and tree pruning work, or equivalent experience as determined by PG&E. It is desired that a CUF have an AA Degree in forestry, arboriculture or a related field. The CUF is familiar with the proper arboricultural techniques and practices, proper integrated pest management practices, PG&E's Tree Pruning Specification, PG&E's pre-Inspection specification and requirements, and all applicable legal and regulatory requirements.

The subject pine tree was in the interior of a stand (a group of trees similar in age and shape). On October 17, 2014, ACRT's CUF, [REDACTED] who has a Bachelor of Science degree in Horticulture, an Associate of Science degree in Environmental Sciences, and is an ISA Certified Arborist, performed a pre-inspection of the stand and identified two gray pine trees on the edge of the stand that should be removed. The two trees were not identified as hazard trees, or dead, rotten or diseased, or with any portion that was dead, rotten or diseased. PG&E has stated: "At a deposition on February 28, 2017, the pre-inspector confirmed the two gray pine trees were removed because they had lateral branching that would likely grow into the minimum clearance zone and become a compliance issue."

PG&E's Vegetation Management Database noted one of the gray pines had a height of 30 feet and diameter at breast height (DBH) of 18 inches and the other gray pine had a height of 30 feet and DBH of 11 inches.

² LiDAR (an acronym of Light Detection And Ranging) is a surveying technology that measures distance by illuminating a target with a laser light. (Source: Wikipedia.)

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PG&E's tree work prescription practices for removal of a tree are as follow:

- Trees of any DBH that will not hold compliance by pruning for a minimum of one year should be pursued as a removal.
- Trees less than 12-inch DBH should be removed rather than trimmed whenever possible.
- Trees equal to or greater than 12-inch and less than 24-inch DBH should be considered for removal if it is not possible to obtain a 2 year clearance through pruning.
- Trees equal to and greater than 24-inch DBH that are unlikely to encroach for a period greater than one year should be pruned rather than removed.

On January 6, 2015, Trees Inc., removed the identified two gray pine trees, and on June 25, 2015 and July 8-21, 2015, PG&E conducted additional CEMA related inspections, orthoimagery, LiDAR, and ground patrols, and did not identify the subject tree as hazardous or requiring trimming.

SED reviewed PG&E's 2011, 2012, 2013, and 2014 audits of PG&E's tree trimming contractors ACRT and Trees Inc. In the 2014 audit (the most recent audit prior to the incident), PG&E found 45 and 14 instances, respectively, in which the aforementioned contractors failed to note trees that needed to be trimmed ("non-compliant trees"), or that would have become non-compliant within 90 days. The majority of the missed hazard trees were trees whose growth would have caused the tree to be out of compliance with clearance requirements by the time of the next patrol. None of the missed hazard trees were trees that were in the interior of a stand of tree and had become exposed (and thus prone to failure).

PG&E's Hazardous Tree Rating Matrix includes the following two Failure Likelihoods: (1) Wind Exposure (topography and position in stand), and (2) Soil Support (whole tree).

Wind's effect on trees is wide ranging and well documented. Trees exposed to wind develop reaction wood and greater trunk diameter, giving the tree greater strength. In contrast, trees that are not exposed to as much wind – such as trees that are in the interior of a stand of trees – do not develop the degree of reaction wood and trunk diameter as exterior trees and are weaker and more prone to leaning to one side when the exterior trees are removed. PG&E's hazardous tree rating process states, "Consider the tree's exposure to wind ... is the tree is [sic] fully exposed or sheltered by other trees?" Additionally, trees exposed to more wind will develop a greater mass of roots (and exposed roots, which are roots that protrude from the ground and are indicative of stronger trees). In contrast, trees that are not exposed to as much wind have weaker root systems.

The above two Failure Likelihoods would apply to trees that are in the interior of a stand and become exposed such as in this incident. Therefore, PG&E's hazardous tree rating matrix did include criteria that could have been used to flag the tree that contacted PG&E's overhead conductor and caused the incident.

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PG&E's vegetation management activities, such as tree trimming, are generally performed by specifically trained contractors who have extensive experience in vegetation related work. Thus, qualified tree contractors – after removing the exterior trees – should have noted that the newly exposed interior trees exhibited signs of trees that had not been exposed to wind and did not have the soil support of stronger trees (again, indicative of trees that are more slender and prone to failure).

Observations and Findings

The subject conductor was AWG 2/0 copper and was part of PG&E's Electra 1101 12 kV circuit. The conductor was installed in 1950. PG&E detail-inspected the Electra 1101 circuit on March 20, 2009 and July 23, 2012, and patrolled it on July 13, 2011 and May 20, 2014.

The 12 kV conductor was protected by a line recloser at Electra Substation, approximately two miles southeast of the incident location. A line recloser is a circuit breaker equipped with a device that automatically recloses the breaker after a fault. The fault that occurred when the tree contacted the overhead conductor did not have the sufficient duration and/or fault current magnitude to meet the relay's minimum time delay or minimum pickup current, respectively, in order for the relay to sense the fault and open the breaker, thus, the conductor remained energized after the contact occurred. The conductor ground clearance was measured at 33 feet. The span distance was approximately 345 feet. In addition, PG&E is not aware of any customer reporting a potentially hazardous tree along the Electra 1101 circuit prior to the Butte Fire.

On September 18, 2015, SED met with CAL FIRE Battalion Chief Gianni Muschetto, CAL FIRE Attorney David Wiseman, [REDACTED] and [REDACTED] of PG&E at the incident location. SED observed that the subject tree had been removed, and a section of the 12 kV conductor had been replaced. Although the 12 kV conductor did not fail and fall to the ground, CAL FIRE requested that PG&E cut and remove the section of the conductor that contacted the tree as part of CAL FIRE's evidence collection; CAL FIRE also cut down and retained the tree as evidence (see figures 2 and 3).

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Figure 2 – Subject Tree Stump

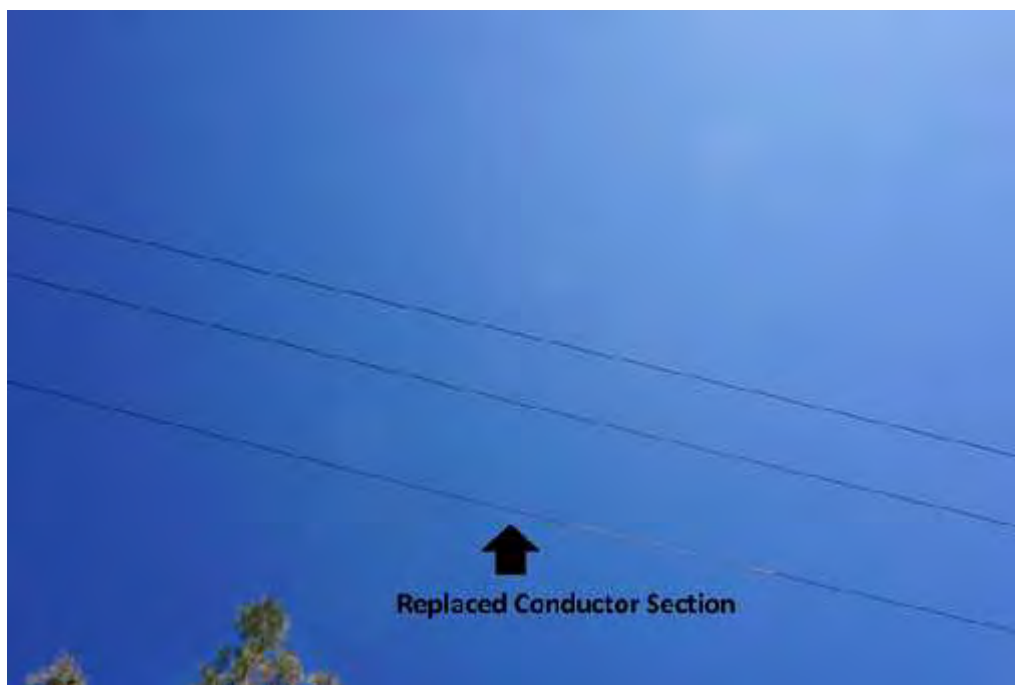


Figure 3 – Replaced Conductor Section

On September 22, 2015, SED staff examined the subject tree and conductor at CAL FIRE's Auburn Headquarters; SED staff observed that the subject tree was cut into sections and also noticed discoloration on the section of the conductor that had been removed (see figures 4 and 5).

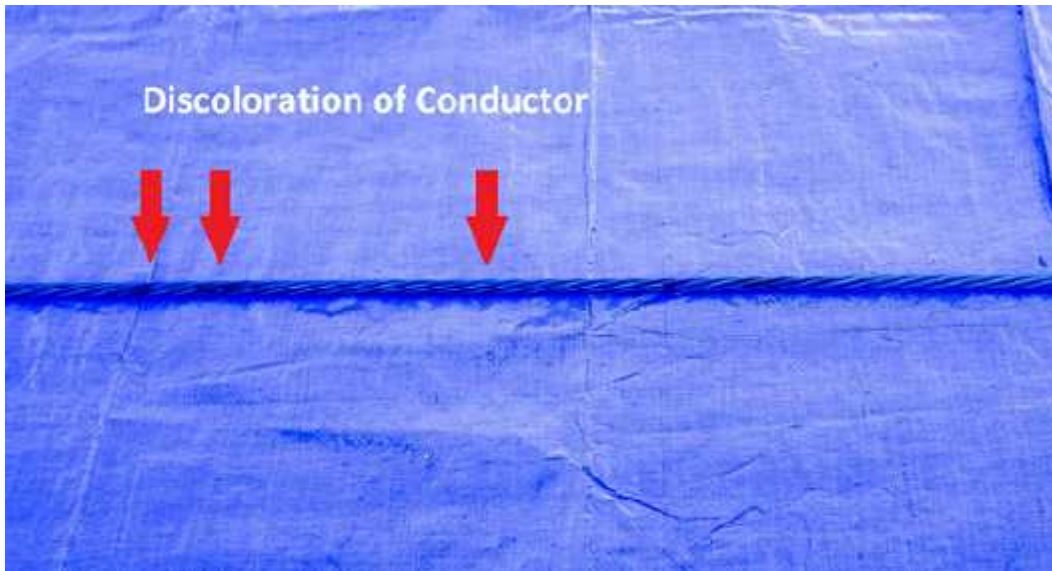


Figure 4 – Discoloration on Conductor (Enhanced)



Figure 5 – Sections of the tree

CAL FIRE's investigation report (see Attachment 1) determined that the subject Gray Pine tree leaned toward the ground, contacted the 12 kV conductor, and then continued to lean toward the

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ground (see figures 6 and 7); when the tree contacted the conductor, the tree caught on fire, dropped burning embers onto dead fuels, and ignited the Butte Fire.³



Figure 6 -
The pine tree lying on the ground after contacting the 12 kV conductor

³ CAL FIRE's Investigation Report, Case Number: 15AAEU024918, Case Name: Butte Incident. (See Attachment 1.)



Figure 7 –
Burn marks on the pine tree which indicates contact

CAL FIRE found that the removal of the two gray pines left the interior trees, including the subject tree, exposed to the south, towards the path of the sun and the powerlines. When a stand is altered and the interior trees are exposed to open spaces, the interior trees are prone to failure.

CAL FIRE's arborist (see Attachment 2) stated that trees that are captured within the confines of a dense stand do not develop reaction wood, have poor trunk taper, and are inherently unstable. The additional exposure would cause secondary growth in the subject tree's canopy that would be most prolific on the southern side, facing the energized conductor. The new foliage and tip growth would cause the tree to fall to the south.

CAL FIRE determined that PG&E and/or its contractors ACRT and Trees, Inc. failed to identify the potential hazard of leaving weaker, inherently unstable trees on the edge of a stand without maintaining them, ultimately leading to the failure of the Gray Pine. CAL FIRE found PG&E in violation of PRC 4421 for having its facilities cause the fire; PRC 4435 for "negligence of the maintenance" of its facilities (conductors), thus resulting in having the fire escape from where it was originated; and Health and Safety Code 13007 and 13009 for allowing "the fire to be set to the property of another."

Based on the evidence that SED reviewed and on CAL FIRE's investigation, SED's investigation found the following:

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General Order (GO) 95, Rule 31.1, states in part:

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.”

The subject tree was alive and healthy before and at the time CAL FIRE removed it. The subject tree was captured inside a tree stand and did not develop reaction wood, i.e. wood that forms in place of growing wood as a response to gravity. When PG&E’s contractor removed trees in the stand, it exposed the interior trees, including the subject tree, to additional sunlight and other natural elements, which caused secondary growth in the subject tree’s canopy on the (southern) side facing the overhead conductors. The additional weight from the new foliage and tip growth caused the tree to lean to the south and contact the conductor. Neither PG&E nor its contractor took appropriate steps to remedy the condition and consequences when they removed the surrounding trees in the stand; thus creating an unsafe and dangerous condition that resulted in the subject tree leaning and making contact with the 12 kV overhead conductor. Therefore, PG&E is in violation of GO 95, Rule 31.1, for failing to maintain its 12 kV overhead conductors safely and properly. PG&E created an unsafe condition when its contractor removed trees in the stand without taking appropriate steps to prevent the remaining subject pine tree from leaning and contacting the 12 kV overhead conductor, thus creating a dangerous condition that caused a fire.

GO 95, Rule 35, states in part:

“Where overhead conductors traverse trees and vegetation, safety and reliability of service demand that certain vegetation management activities be performed in order to establish necessary and reasonable clearances, the minimum clearances set forth in Table 1, Cases 13 and 14, measured between line conductors and vegetation under normal conditions shall be maintained. (Also see Appendix E for tree trimming guidelines.) These requirements apply to all overhead electrical supply and communication facilities that are covered by this General Order, including facilities on lands owned and maintained by California state and local agencies.”

GO 95, Rule 35 requires the minimum radial clearance between 12 kV overhead conductors and vegetation to be 18 inches. In this incident, the subject tree contacted PG&E’s 12 kV overhead conductor. Therefore, PG&E is in violation of GO 95, Rule 35, for failing to maintain the minimum required clearance between the 12 kV conductor and the subject tree.

Resolution E-4184, which modified Decision 06-04-055, requires utilities, such as PG&E, to report to the CPUC all reportable incidents within 2 hours of the incident during normal working hours or within 4 hours of the incident outside of normal working hours. Reportable incidents are

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those which meet the following criteria: (a) result in fatality or personal injury rising to the level of in-patient hospitalization and attributable or allegedly attributable to utility owned facilities; (b) are the subject of significant public attention or media coverage and are attributable or allegedly attributable to utility facilities; or (c) involve damage to property of the utility or others estimated to exceed \$50,000.

The website <http://www.mymotherlode.com/community/fire/butte-fire-summary-timeline> indicates that the damage from the Butte fire exceeded \$50,000 soon after the fire was ignited on September 9, 2015, due to burning from 160 to 64,728 acres in three days.

In addition, on September 11, 2015, CAL FIRE's investigators requested PG&E to remove a section of PG&E's 12 kV overhead conductor because of suspicion of being related to the incident. PG&E was aware that its facilities may have been involved in a fire with damages that exceeded \$50,000, but did not report the incident to the CPUC until September 16, 2015, five (5) days after PG&E became aware that its facilities may have been involved in the fire. Therefore, PG&E violated Resolution E-4184 for reporting the incident late.

Preliminary Statement of Pertinent General Order, Public Utilities Code Requirements, and/or Federal Requirements:

| | | | Violation |
|---|------------|-----------|------------------|
| 1 | GO 95 | Rule 31.1 | Yes |
| 2 | GO 95 | Rule 35 | Yes |
| 3 | Resolution | E-4184 | Yes |

Conclusion:

The SED investigation found PG&E in violation of:

- GO 95, Rule 31.1, for failing to maintain its 12 KV overhead conductors safely and properly. PG&E created an unsafe condition when its contractor removed trees in the stand without taking appropriate steps to prevent the remaining subject pine tree from leaning and contacting the 12 kV overhead conductor, thus creating a dangerous condition that caused a fire.
- GO 95, Rule 35, for failing to maintain 18 inches of clearance between its 12 kV overhead conductor and the subject pine tree.
- Resolution E-4184 for reporting the incident late to the CPUC. CAL FIRE determined that contact started the Butte Fire. PG&E has not determined the cause of the fire but has not ruled out PG&E's facilities as being the cause of the fire.

Exhibit 71

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Investigation on the Commission's Own Motion into the Maintenance, Operations and Practices of Pacific Gas and Electric Company (U39E) with Respect to its Electric Facilities; and Order to Show Cause Why the Commission Should not Impose Penalties and/or Other Remedies for the Role PG&E's Electrical Facilities had in Igniting Fires in its Service Territory in 2017.

I.19-06-015
(Filed June 27, 2019)

**PACIFIC GAS AND ELECTRIC COMPANY'S (U 39 E) REPORT IN
RESPONSE TO ATTACHMENT B OF THE COMMISSION'S ORDER
INSTITUTING INVESTIGATION AND ORDER TO SHOW CAUSE**

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(EXHIBIT 4 CONTAINS CONFIDENTIAL INFORMATION)**

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Dated: August 5, 2019

**BEFORE THE PUBLIC UTILITIES COMMISSION
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Order Instituting Investigation on the Commission's Own Motion into the Maintenance, Operations and Practices of Pacific Gas and Electric Company (U39E) with Respect to its Electric Facilities; and Order to Show Cause Why the Commission Should not Impose Penalties and/or Other Remedies for the Role PG&E's Electrical Facilities had in Igniting Fires in its Service Territory in 2017.

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INSTITUTING INVESTIGATION AND ORDER TO SHOW CAUSE**

**PUBLIC VERSION
(EXHIBIT 4 CONTAINS CONFIDENTIAL INFORMATION)**

Pacific Gas and Electric Company ("PG&E") provides this Report in Response to Attachment B ("Attachment B Report") and documents Bates labeled PGE-2017Wildfires-OII-0000000001 to PGE-2017Wildfires-OII-0000006600¹ as directed by the Order Instituting Investigation and Order to Show Cause ("OII")² and OII Attachment B ("Attachment B").

The Attachment B Report is attached hereto as Exhibit 1 and includes PG&E's responses to all Attachment B requirements with the exception of Requirements III.B.1, 2 and 7. PG&E's response to those requirements will be provided on August 23, 2019, as permitted by Administrative Law Judge ("ALJ") Darcie L. Houck's July 29, 2019 order allowing an extension of the time to respond to certain Attachment B requirements.³

A list of personnel, including full names, business addresses, and titles, who are

¹ Please note that four of the documents included in this production have a "privileged and confidential", "attorney-client privileged" or "attorney work product" notation. (See PGE-2017Wildfires-OII-0000005361-5362, PGE-2017Wildfires-OII-0000005640, PGE-2017Wildfires-OII-0000006307, and PGE-2017Wildfires-OII-0000002862-2872.) We have determined that these documents are neither privileged nor subject to attorney work product protection; in producing these documents, we do not intend to waive any valid claim of privilege and/or work product protection.

² See OII at p. 21.

³ Transcript of July 29, 2019 Status Conference at 8:27-9:16, 11:3-23.

knowledgeable about the information provided in the Attachment B Report is attached hereto as Exhibit 2.

An index of the documents produced at Bates numbers PGE-2017Wildfires-OII-0000000001 to PGE-2017Wildfires-OII-0000006600 is attached hereto as Exhibit 3.

The Bates labeled documents will be filed in CD-ROM/DVD format as Exhibit 4. Portions of Exhibit 4 contain confidential information and will be filed under seal with the Commission's Docket Office. Due to the voluminous nature of the documents, they will be made available via instructions on the Notice of Availability.

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EXHIBIT 1

ATTACHMENT B REPORT

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Investigation on the Commission's Own Motion into the Maintenance, Operations and Practices of Pacific Gas and Electric Company (U39E) with Respect to its Electric Facilities; and Order to Show Cause Why the Commission Should Not Impose Penalties and/or Other Remedies for the Role PG&E's Electrical Facilities had in Igniting Fires in its Service Territory in 2017.

I.19-06-015
(Filed June 27, 2019)

EXHIBIT 1

**PACIFIC GAS AND ELECTRIC COMPANY'S (U 39 E) REPORT IN RESPONSE
TO ATTACHMENT B OF THE COMMISSION'S ORDER INSTITUTING
INVESTIGATION AND ORDER TO SHOW CAUSE**

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I. INTRODUCTION

Pacific Gas and Electric Company (“**PG&E**”) provides this Report in Response to Attachment B (“**Attachment B Report**” or “**Report**”) as directed by the Order Instituting Investigation and Order to Show Cause (“**OII**”) and OII Attachment B (“**Attachment B**”). Below, PG&E responds to each of the Commission’s requirements set forth in Sections II and III of Attachment B, organized by the following topics set forth in Section I:

- A. Vegetation management procedures and practices (“**Vegetation Management**”)
- B. Use of recloser devices in high fire risk areas (“**Reclosers**”)
- C. Pro-active de-energization of power lines during times of high fire danger (“**Proactive De-energization**”)
- D. Recordkeeping practices relating to work orders and inspection records (“**Recordkeeping**”)
- E. Handling and retention of evidence
- F. Monitoring and other practices to prevent conductor-to-conductor contact (“**Conductor-to-Conductor Contact**”)
- G. Other Risks to Public Safety

While this Report is based on PG&E’s best efforts and the best information available to it within the prescribed time period, PG&E reserves the right to supplement this Report with additional facts and documentation to the extent that PG&E becomes aware of any.

II. VEGETATION MANAGEMENT

PG&E's vegetation management ("VM") program rigorously manages risk and monitors compliance with state and federal laws and regulations by conducting annual patrols along all of its overhead distribution and transmission lines—nearly 100,000 line miles—and conducting tree work, including pruning and removal, on more than 1,300,000 trees each year. Over the years, the growing risks associated with climate change have presented new challenges for PG&E's VM program. In recent years, California experienced severe drought conditions that resulted in record-setting tree mortality rates throughout the state and created dry vegetative conditions that have contributed to the rapidly increasing risk of wildfires. To combat these challenges, PG&E has developed a comprehensive, multi-pronged VM program designed to not only maintain compliance with state and federal regulations, but also to further mitigate wildfire risk by proactively conducting tree work that exceeds PG&E's compliance obligations and reduces the likelihood of tree failure, addressing risks associated with the drought and tree mortality, and enhancing defensible space by conducting targeted fuel management under and adjacent to PG&E facilities.

A. PG&E Conducts Annual VM Patrols Along 100 Percent of Its Lines To Maintain Compliance with Laws and Regulations¹

PG&E has three VM programs designed to meet or exceed its compliance obligations under state and federal laws and regulations, including Public Resource Code ("PRC") Sections 4292 and 4293; CPUC General Order ("GO") 95, Rule 35; and NERC FAC-003-04: (1) the routine distribution VM program; (2) the transmission VM program and (3)

¹ In this Section, PG&E is responding to Sections II.A, C, D, E, and G of Attachment B as to Topic A, Vegetation Management and Section III.A.2 of Attachment B. For certain questions identified below, PG&E does not have, and therefore cannot provide, an answer to the question posed.

the vegetation control (“VC”) or pole clearing program.² These compliance-focused programs are supplemented by enhanced risk-based programs designed in response to climate change and increased wildfire risk, as described in Section II.B below.

i. Routine Distribution VM Program

Through PG&E’s routine distribution program, annual patrols are conducted along all 81,000 line miles of PG&E’s overhead distribution lines. Routine VM work consists of inspection (referred to by PG&E as “**pre-inspection**”) and tree work. Pre-inspectors walk PG&E’s distribution lines to identify trees that may grow too close to power lines or trees that are dead, dying, diseased or have signs of defects observable from a pre-inspector’s vantage point. Tree work, including pruning or removal, is then conducted in accordance with work prescriptions assigned by pre-inspectors. Pre-inspections and tree work are done by contractors hired by PG&E, and all VM activities are overseen by PG&E employees, including the Regional Managers, Supervising Vegetation Program Managers (“**SVPM**”) and Vegetation Program Managers (“**VPM**”) for geographical divisions in PG&E’s service area.

(1) General Requirements

The purpose of the routine distribution program is to maintain year-round compliance with the requirements outlined in PRC Section 4293, which requires four feet of clearance in State Responsibility Areas (“**SRAs**”) during fire season, and GO 95, Rule 35, which requires 1.5 feet of clearance in Local Responsibility Areas (“**LRAs**”) year-round and, since September 2018, requires four feet of clearance in High Fire Threat Districts (“**HFTDs**”).³

² PG&E additionally identifies dead, dying and diseased trees through its additional VM programs, which are described further in Section II.B below.

³ These additional clearance requirements were adopted by the Commission in December 2017, but took effect on September 1, 2018. CPUC Decision Adopting Regulations To Enhance Fire Safety In The High

PG&E's Distribution Vegetation Management Standard (“**DVMS**”)⁴ instructs pre-inspectors to prescribe trees for work so that “[v]egetation [does] not encroach within the minimum distance [outlined in PRC Section 4293 and Rule 35] at any time between inspection and one year or next scheduled tree work cycle.”⁵ PG&E is producing the DVMS at PGE-2017Wildfires-OII-0000002947-963. In practice, this standard requires pre-inspectors to prescribe pruning work in excess of the minimum clearance requirements to account for normal tree growth throughout the year, or to prescribe additional measures—including bi-annual or accelerated trims or tree removal—to prevent encroachment.⁶

PG&E has made a number of updates to its VM procedures in the last two years. In December 2017, the Commission issued a decision imposing more stringent “Case 14” clearance requirements in all HFTDs under GO 95, Rule 35. As noted by the Commission, this decision significantly increased the number of square miles in Northern California subject to

Fire-Threat District, Dec. 21, 2017, at 53,
<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M200/K976/200976667.PDF>.

⁴ PG&E's current VM standards, practices, policies, and procedures are available on a centralized database known as the Technical Information Library (“**TIL**”) that can be accessed by all PG&E employees and VM contractors. Prior to 2015, PG&E's VM standards, practices, policies, and procedures were available on a different centralized database known as the Electronic Data Management Application (“**EDMA**”). PG&E does not regularly maintain all historical versions of policies that are not currently in effect. PG&E is producing all of its vegetation management policies, procedures, and practices in effect at any time between January 1, 2013 and May 31, 2019 that it has identified after a diligent search and reasonable inquiry at PGE-2017Wildfires-OII-0000002873-4311; PGE-2017Wildfires-OII-0000006569-600.

⁵ The DVMS was first published in September 2015 as part of a broader effort to compile all existing VM policies in a unified “Utility Procedure” format. The DVMS was intended to reflect the current practices of the VM Program already in place as of at least July 2015. Prior to 2015, the Distribution Routine Patrol Standard similarly required that vegetation “not encroach within the minimum distance at any time between inspection and one year or next scheduled trim.” PG&E is producing the Distribution Routine Patrol Standard at PGE-2017Wildfires-OII-0000004029-032.

⁶ PG&E's Distribution Routine Patrol Procedure (“**DRPP**”) describes the circumstances under which a pre-inspector should prescribe bi-annual or accelerated tree work. PG&E is producing the DRPP at PGE-2017Wildfires-OII-0000003047-071.

Case 14 requirements from zero to 57,884.⁷ In February 2018, PG&E updated its procedures to align PG&E's minimum distance requirements with these more stringent clearance requirements, which took effect on September 1, 2018. To alert all VM employees and contractors of its amended compliance obligations, PG&E issued an HFTD Bulletin, which requires that vegetation not encroach within four feet of overhead distribution conductor in all HFTDs, including those located in LRAs. And, as stated in PG&E's Enhanced Vegetation Management Scope Bulletin, beginning in 2019, PG&E requires that all vegetation located in HFTDs that has the potential to encroach within four feet of a primary distribution conductor before the next year's routine work cycle be trimmed to achieve at least a 12-foot clearance in all directions. PG&E is producing the HFTD Bulletin and the Enhanced Vegetation Management Scope Bulletin at PGE-2017Wildfires-OII-0000002969-971 and PGE-2017Wildfires-OII-0000003658-662, respectively.⁸

In addition to inspecting trees to maintain clearance requirements year-round, pre-inspectors are required to identify and prescribe work for trees that violate PRC Section 4293 and GO 95, Rule 35.⁹ This includes trees that have encroached upon clearance requirements and "[t]rees that are dead, show signs of disease, decay or ground / root disturbance that may fall into or otherwise impact" PG&E assets or facilities (referred to by PG&E as facility protect ("FP") trees). PG&E's Facility Protect and Work Difficulty Classification Procedure provides guidelines for identifying and prescribing work for FP trees, and its Vegetation Management Hazard Tree Rating and Scoring Procedure ("HTRS") is a tool that may be used to evaluate the

⁷ CPUC Decision Adopting Regulations To Enhance Fire Safety In The High Fire-Threat District, Dec. 21, 2017, at 53, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M200/K976/200976667.PDF>.

⁸ PG&E is also producing a prior version of the Enhanced Vegetation Management Scope Bulletin at PGE-2017Wildfires-OII-0000003663-668.

⁹ In this and the following paragraph, PG&E is responding to Sections III.A.4 and 5 of Attachment B.

condition of a tree (or a portion of a tree) that if it fails, has the potential to impact PG&E facilities. PG&E is producing the Facility Protect and Work Difficulty Classification Procedure and the HTRS at PGE-2017Wildfires-OII-0000003762-770 and PGE-2017Wildfires-OII-0000003126-146, respectively.¹⁰

PG&E's Transmission & Distribution Vegetation Management Hazard Notification Procedure ("**HN Procedure**") outlines the steps that must be followed when a pre-inspector identifies a tree that violates PRC Section 4293 and/or GO 95, Rule 35. Two types of hazards trigger the HN Procedure.

First, if vegetation is "[i]n contact or show[s] signs of previous contact with a distribution primary conductor," is "[a]ctively failing or at immediate risk of failing and could strike the facilities," or "presents an immediate risk to electric overhead facilities," it is classified as an "immediate hazard." If a person identifies an immediate hazard, he or she must remain onsite until a tree crew arrives to trim or remove the tree. Although prior to 2019 the HN Procedure did not specify a timeframe within which tree work for immediate hazards had to be completed, the work was generally completed within one day of being observed. In May 2019, PG&E updated its HN Procedure to specifically require that tree crews complete tree work for immediate hazards within 24 hours.

Second, if vegetation has encroached within minimum clearance requirements or otherwise "requires near-term mitigation," it is classified as an "urgent hazard." If a person identifies an urgent hazard, he or she must contact the SVPM or VPM to inform them of the

¹⁰ PG&E is producing the prior versions of these procedures identified after a diligent search and reasonable inquiry at PGE-2017Wildfires-OII-0000003849-853 (Facility Protect and Work Difficulty Classification Procedure), PGE-2017Wildfires-OII-0000003155-165 (HTRS), and PGE-2017Wildfires-OII-0000004221-231 (HTRS).

hazard. From January 2013 to April 2019, the SVPM or VPM was responsible for “determining the best course of action,” including by confirming that appropriate work was scheduled and completed in a timely fashion. In May 2019, PG&E updated its HN Procedure to require that for urgent hazards, a work order (referred to by PG&E as a “**work request**”) be generated and issued within three business days of the hazard being observed, and that during fire season, the work itself be completed within five business days of the creation of the work request. Work requests for urgent hazards generated outside of fire season must be completed within ten business days of the creation of the work request. PG&E is producing its HN Procedure at PGE-2017Wildfires-OII-0000003695-710.¹¹

Additionally, since June 2018, PG&E has required that on red flag high fire risk days, pre-inspectors follow up with tree contractors on all immediate and urgent hazards for which the work order has not been “completed” in PG&E’s system.¹² During these red-flag days, pre-inspectors contact the tree contractor to confirm the HN work is complete. If it is not, the tree contractor is asked to complete the work within 24 hours. Immediate and urgent hazards are tracked through an electronic “Tree Summary Report” that is updated daily. Additionally, SVPMs and VPMs have local status meetings with contractors typically every two to three weeks during which they review progress on all pending work, including immediate and urgent hazards in their area. VM Operations managers, including Senior Managers, are provided summary reports tracking progress on immediate and urgent hazards on a weekly basis.

¹¹ PG&E is also producing the prior versions of the HN Procedure that were identified after a diligent search and reasonable inquiry at PGE-2017Wildfires-OII-0000003678-691 and PGE-2017Wildfires-OII-0000003858-866.

¹² A work order is “completed” only when the electronic input certifying completion has been submitted to PG&E by the tree contractor. Thus, a work order may be outstanding even after the underlying tree work has been completed.

As noted, prior to May 2019, PG&E procedures did not prescribe the time within which immediate and urgent hazards had to be corrected.¹³ Therefore, PG&E has not identified any “instances between January 1, 2013 and May 31, 2019 in which a known vegetation-related violation of law or PG&E procedures was not corrected or otherwise abated within the interval specified by PG&E’s procedures.” PG&E anticipates that by the end of 2019, the Tree Tracker system, which is described in further detail below, will facilitate real-time tracking of VM work and allow PG&E to record historical information regarding the number of violations not corrected within the intervals specified by PG&E’s new HN Procedures.

(2) Frequency of Distribution Inspections and Work

Routine inspections and tree work occur year-round and are assigned to contractors by “project.” Routine projects generally consist of a section of line that corresponds with a particular circuit, and are scheduled according to the most recent prior patrol or work date of the circuit, among other factors. Scheduling in this manner is designed to stagger each circuit’s inspection and associated tree work cycle approximately 12 months after the prior inspection and associated tree work cycle for that circuit. Routine schedules are recorded in PG&E’s Project Management Database (“**PMD**”).¹⁴ As inspections and work are completed, that information is also recorded in PMD to assist SVPMs and VPMs with monitoring work progress and completion.

Beginning in 2019, PG&E made changes to its routine schedule as part of its broader wildfire mitigation efforts. As part of these changes, in the first quarter of 2019, PG&E

¹³ In this and the following paragraph, PG&E is responding to Section III.A.5 of Attachment B.

¹⁴ PG&E’s annual planning and verification procedures are detailed in Utility Procedure TD-7102P-14, PMD Circuit and Line Verification Procedure, last updated on July 8, 2015. PG&E is producing the PMD Circuit and Line Verification Procedure at PGE-2017Wildfires-OII-0000003512-525.

updated its annual routine schedule to prioritize that routine work based on the relative risk ranking of all circuits. As set forth in PG&E's Wildfire Safety Plan ("WSP"), the goal of this new risk-informed schedule is "to position the highest risk circuits to be worked before the peak of the traditional wildfire season." The new routine schedule is informed, in part, by a risk analysis that ranks each of PG&E's individual circuits based on the following three criteria:

(1) likelihood of asset failure; (2) risk of wildfire spread and consequence; and (3) egress risk.¹⁵

(See, Section VIII.B.v below for a detailed explanation of this risk prioritization model.)

(3) Recordkeeping

In order to track and confirm that all relevant line segments were patrolled, PG&E's current procedures require that pre-inspectors highlight hard copy maps as inspections are completed.¹⁶ Pre-inspectors must also create "inspection records" for all trees requiring work by entering prescriptions and other supporting information into a handheld electronic device.¹⁷

The inspection record is then downloaded to PG&E's Vegetation Management Database ("VMD"). Work prescriptions are issued to tree contractors as work requests through the VMD. Tree contractors must perform tree work in accordance with the pre-inspector's prescriptions and

¹⁵ In 2019, as PG&E transitions to a new enhanced risk-informed schedule, PG&E has scheduled mid-cycle inspections where a circuit's tree work cycle is moved out more than 15 months after the prior year's cycle. This measure will allow SVPs and VPMs to further monitor potential compliance issues ahead of the next tree work cycle. Beginning in 2020 and for each year thereafter, PG&E intends to stagger its inspection and associated tree work cycles approximately 12 months after the prior year's inspection and tree work cycles.

¹⁶ PG&E's policies require pre-inspectors to document patrols on a "field map" by highlighting the lines as they complete inspection. Upon completion of one project, the pre-inspection company responsible must combine all field maps and, within two weeks, confirm that all lines within the project were inspected by highlighting, signing and dating a combined "index map." VPMs are responsible for maintaining "master maps" and verifying that all the lines in one project were documented. These policies are outline in Utility Procedure TD-7102P-06, Inspection Mapping, which PG&E is producing at PGE-2017Wildfires-OII-0000003568-578.

¹⁷ Additional procedures governing database management for pre-inspectors are outlined in Utility Procedure TD-7102P-03, Database Monitoring Procedure, last updated June 1, 2015. PG&E is producing the Database Monitoring Procedure at PGE-2017Wildfires-OII-0000004297-309.

PG&E's numerous policies governing tree work and contractor safety.¹⁸ Once tree contractors complete tree work, they indicate individual trees completed on the work request in VMD and this becomes a formal invoice.

As noted above, by the end of 2019, PG&E expects to roll out a new Tree Tracker system for its routine operations. The new system will allow pre-inspectors to enter prescriptions directly into the system from a mobile device and to mark segments of conductor as "inspected" on a digital map, rather than highlighting a paper map. Tree prescriptions will be issued to tree contractors electronically using the same system, and the location of trees will be displayed on a digital map on the tree contractor's mobile device. The Tree Tracker system will improve accuracy by allowing tree crews to view trees on a map rather than relying on a nearby street address and description of the tree requiring work. The new system will also allow PG&E to have improved real-time visibility into all inspections and tree work.

(4) Quality Control & Quality Assurance

PG&E also conducts VM Quality Control ("QC") reviews and Quality Assurance ("QA") audits to further monitor compliance with GO 95, Rule 35 and PRC Section 4293. Both processes are overseen by PG&E employees.

¹⁸ As of October 2017, PG&E's policies addressing contractor safety included its VM Contractor Safety Procedure (PGE-2017Wildfires-OII-0000006569-580), Tree Climbing Equipment and Basic Procedures (PGE-2017Wildfires-OII-0000006581-590) and Bulletin Establishing Danger Zone for Tree Felling Operations (PGE-2017Wildfires-OII-0000003714-717). PG&E updated each of these policies between August and December 2018. *See* PGE-2017Wildfires-OII-0000003282-315 (VM Contractor Safety Procedures); PGE-2017Wildfires-OII-0000006591-600 (Tree Climbing Equipment and Basic Procedure); and PGE-2017Wildfires-OII-0000003718-721 (Bulletin Establishing Danger Zone for Tree Felling Operations). PG&E also issued new policies governing Hazardous Tree Removal on May 31, 2018 (PGE-2017Wildfires-OII-0000003669-673) and VM Line Clearance Requests on January 9, 2019 (PGE-2017Wildfires-OII-0000003395-404). The VM Contractor Safety Procedure was additionally updated on June 17, 2019 (PGE-2017Wildfires-OII-0000003264-280).

QC reviews assess whether pre-inspection contractors identify and prescribe the proper work, as well as whether the tree workers' performance is consistent with contractual requirements (*e.g.*, completing work prescribed by pre-inspectors). QC reviews are conducted on an ongoing basis as routine work is completed. QC reviewers, all of whom are contract employees,¹⁹ pull random samples of work performed by pre-inspectors and tree workers from all locations recently worked within a given date range. The reviewers use a set of criteria to measure each pre-inspector's or tree worker's performance in that random sample of work. Assigned corrective actions, which may range from providing specific contract employee feedback to re-patrolling or re-working lines, are documented by VPMs, who help track whether the corrective actions are fully implemented.

VM QA audits are used to identify and track recurring or systemic issues and may include long-term corrective actions that are implemented to prevent recurrence. VM QA audits are performed once each year for both SRAs and LRAs in each division and are based on a random sample of line segments within each division.²⁰ QA audits include three compliance-related assessments—contact compliance, regulatory compliance and Major Woody Stem (“**MWS**”) compliance²¹—and track adherence to PG&E's internal procedures, including recordkeeping procedures. As of January 1, 2013, QA auditors were PG&E employees, but since 2015, PG&E has relied on some contractors to also conduct these audits. The auditors patrol the random sample of line segments to identify issues in the field and also review the

¹⁹ PG&E contracts with one QC contractor, California Forestry and Vegetation Management, who performs all routine QC reviews and does not perform any pre-inspection or tree work.

²⁰ PG&E also compiles information from each of its divisions in an annual system-wide QA report.

²¹ Contact compliance measures the number of trees showing evidence of contact with a line. Regulatory compliance tracks compliance with GO 95, Rule 35 and PRC Section 4293. MWS compliance tracks whether PG&E's pre-inspectors properly identified large healthy trees that are exempt from GO 95, Rule 35 requirements.

records maintained by PG&E and its contractors to confirm compliance with PG&E's policies. Auditors also perform a cause evaluation of any actual or potential compliance issues, identify trends, and report the results to the VM Operations Managers and the VPM for the area. The VPM is responsible for taking short-term action to correct identified deficiencies and for communicating any required corrective actions to the contractors. If an audit identifies a recurring or systemic issue, the VM Operations group, working with input from the QA Specialists, develops long-term action plans to address the issue.

ii. Transmission Line Vegetation Maintenance Program

PG&E also patrols every line mile of its approximately 18,000 miles of overhead transmission lines (60 kV and above) each year. Federal standards require utilities to completely prevent encroachments from vegetation located within and adjacent to the transmission right of way ("**ROW**"). PG&E's transmission line VM program is designed to meet or exceed state laws and federal regulations, including PG&E's Transmission Maintenance Agreement, approved and enforced by the California Independent System Operator ("**CAISO**"), PRC Sections 4292 and 4293, GO 95, Rule 35, and NERC FAC-003-04, as well as industry standards.

PG&E annually performs VM work along all of its transmission lines, including pruning, removing, or otherwise controlling vegetation that is undesirable, unsafe, or interferes with the intended use of the site. Patrols of PG&E transmission lines are conducted using LiDAR technology to identify spans where there are trees with the potential to contact transmission lines. Where such trees are identified using LiDAR, a subsequent ground inspection is conducted to assess the health of the identified trees and to determine if additional action, including removal, is necessary. As a means to limit or prevent tall vegetation from growing near its transmission lines, PG&E also uses Integrated Vegetation Management

(“IVM”) techniques, such as chemical treatments and removals, to encourage the growth of preferred species—*i.e.*, those less likely to contact transmission lines.

Pre-inspection and tree work for the transmission VM program are conducted by contractors and overseen by PG&E employees. Routine transmission inspection records and work requests are maintained in the VMD. Records for IVM projects are maintained in the PMD.

PG&E’s QC contractor performs QC reviews on an ongoing basis as work is completed. As of 2015, PG&E has also conducted QA audits of its transmission program based on a random sample of line miles taken from all transmission lines in PG&E’s system. This process culminates in an annual audit report of the transmission program. QA Auditors are contract employees who are overseen by PG&E employees. Prior to 2015, audits of PG&E’s transmission program were included in the division-level reviews conducted for the routine distribution program.

iii. Vegetation Control (“VC”)

PRC Section 4292 requires that all utilities maintain certain clearance distances around poles in SRAs that have equipment that may generate electrical arcs, sparks or hot material during normal operation (“**non-exempt equipment**”), including the removal of all flammable material within a ten foot radius of the pole. PG&E’s VC program, also referred to as the pole clearing program, is designed to maintain this clearance around the approximately 120,000 non-exempt poles in PG&E’s service area. During VC patrols, contractors inspect poles carrying non-exempt equipment to look for surrounding vegetation. Poles with non-exempt equipment are inspected between one and four times each year through the VC program. Clearance work generally includes physically removing vegetation and the application of

herbicide. Additionally, PG&E does some pole clearing work in LRAs identified as high fire risk in excess of its regulatory obligations.

PG&E maintains records for its VC program in its Pole Clearing Database (“**PCD**”). PG&E’s QC contractor conducts VC QC reviews on an ongoing basis as work is completed to further monitor compliance with PRC Section 4292. PG&E did not conduct formal QA audits of the VC program until 2018. Since 2018, PG&E has performed VC QA audits based on a random sample of line miles taken from all overhead distribution lines in PG&E’s system.²² VC QA audits are conducted on an annual basis and measure compliance with PRC Section 4292 and compliance with recordkeeping requirements. QA auditors are contract employees who are overseen by PG&E employees.

B. PG&E Has Expanded Its VM Programs To Respond To Climate Change and Increasing Wildfire Risk²³

In addition to its compliance-driven work, PG&E has developed enhanced VM programs to address areas of higher potential risk and combat the effects of drought and climate change. These additional inspections of areas identified as having a higher potential risk have been performed through six programs: (1) the Reliability Program; (2) the Drought and Tree Mortality Response program; (3) the Fire Risk Reduction (“**FRR**”) program; (4) the Fuel Reduction program; (5) the Accelerated Wildfire Risk Reduction (“**AWRR**”) program; and (6) the Enhanced Vegetation Management (“**EVM**”) program. As the risks affecting PG&E’s

²² From 2015 to 2017, auditors performing VM QA audits informally collected information relevant to the VC program in the course of performing QA audits for the routine distribution VM program. This information was compiled in a system-wide report known as the System VC Pole Clearing Assessment Summary, but this report was not considered a formal audit of the VC program.

²³ In this Section, PG&E is responding to Sections II.A, B, C, D, E, and G of Attachment B as to Topic A, Vegetation Management and Sections III.A.2 and 3 of Attachment B.

service territory have evolved, so too have the scope and frequency of these inspections, which are described in further detail below.

i. Reliability Program

For over ten years, PG&E has performed additional foot patrols and tree work on its distribution lines as part of its Reliability Program (previously called the Public Safety & Reliability (“**PS&R**”) Program or Enhanced Electric Vegetation Management (“**EEVM**”) Program). Reliability patrols are designed to focus on circuit segments that have a higher rate of vegetation-caused outages and vegetation-caused wires down. These patrols are conducted to reduce such instances and thereby further reduce the risk of wildfires.

Reliability projects are planned on the basis of historical outage data. PG&E records outage data regarding distribution transformer-level and above outages in its Integrated Logging Information System (“**ILIS**”) database. ILIS is the application used by the distribution system operators to document information pertinent to the operation of the electric system. In addition, PG&E conducts site visits to suspected vegetation-caused outage events as part of its standard vegetation outage investigation process. PG&E tracks relevant data obtained through this investigation process in VM investigation reports and the VM outage database. To determine what areas should be subject to additional Reliability inspections each year, a Reliability program manager compiles and reviews historical outage data from these sources as well as the local expertise of SVPs and VPMs.

ii. Drought and Tree Mortality Program²⁴

In 2014, PG&E implemented its Drought and Tree Mortality Response program funded through the Catastrophic Event Memorandum Account (“CEMA”). The program, which is referred to by PG&E as the “CEMA program”, was implemented in response to Governor Brown’s state of emergency proclamations regarding California’s severe drought and unprecedented tree mortality, the directive of the CPUC Safety and Enforcement Division (“SED”), and CPUC Resolution ESRB-4. The program includes, among other things, increased ground and aerial inspections and tree work in high fire threat areas, cooperating with California agencies and organizations to implement protective measures that decrease fire response times (e.g., scheduling aircraft flights to provide early detection of fires), clearing access roads, and reducing fire fuels.

The geographic scope of CEMA inspections has evolved over time in light of the increasing challenges presented by drought and climate change. In December 2017, the United States Forest Service (“USFS”) and CAL FIRE announced that a record-breaking 129 million trees on 8.9 million acres had died due to drought and bark beetles in California from 2010 to 2017.²⁵ USFS and CAL FIRE attributed these historic mortality rates to “the effects of five consecutive years of severe drought in California, a dramatic rise in bark beetle infestation and rising temperatures.”²⁶ As a member of the Governor-supported Tree Mortality Task Force, PG&E responded to the growing drought problem by performing additional tree removal work in areas affected by the drought. Between 2014 and 2017, PG&E worked approximately 400,000

²⁴ In this Section, PG&E is responding to Section II.B of Attachment B as to Topic A, Vegetation Management.

²⁵ U.S. Forest Service & CAL FIRE, News Release, *Record 129 Million Dead Trees in California* (Dec. 12, 2017), https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd566303.pdf.

²⁶ *Id.*

dead and dying trees through its CEMA program, in addition to the trees PG&E removed through its routine distribution and transmission VM programs. In 2016 alone, when tree mortality peaked at 62 million dead trees statewide—a 100 percent increase in dead trees from 2015—PG&E worked approximately 225,000 trees in its service area, dramatically increasing its tree work from 2015, when it worked approximately 19,000 trees through the CEMA program.

In response to the growing threat of climate change and the increased number and severity of wildfires affecting Northern California, PG&E expanded its CEMA program to perform additional patrols in high fire risk areas. In August 2017, while awaiting the adoption of a statewide CPUC Fire-Threat Map (“**HFTD Map**”), PG&E expanded CEMA inspections to areas designated as “Tier 3” in a July 31, 2017 Proposed HFTD Map developed by the Peer Development Panel. Additionally, PG&E performed additional inspections up to three times per year in Wildland Urban Interface Areas (“**WUI**”) designated Fire Hazard Severity Zones. By October 2017, additional CEMA inspections covered 50 percent of PG&E’s overhead distribution line miles. After the final HFTD Map was adopted by the Commission in January 2018, PG&E expanded the CEMA program to perform additional patrols in all HFTD areas by June 2019.

As with PG&E’s routine VM program, CEMA inspections are carried out by pre-inspection contractors who highlight paper inspection maps and prescribe work that is issued to tree contractors via PG&E’s VMD. Work progress and completion is monitored by SVPMs and VPMs, and can be observed through PG&E’s PMD. Patrolling standards for CEMA inspections are governed by PG&E’s VM Second Patrol–Practices Procedure and Second Patrol– Scope of Work Requirements, among others. PG&E is producing these policies at PGE-2017Wildfires-OII-0000002930-946 and PGE-2017Wildfires-OII-0000003192-196, respectively. To the extent

that CEMA inspectors observe clearance issues in the field, PG&E's policies outline the steps that must be taken so that work is properly assigned to the routine program. Where appropriate, PG&E also performs aerial inspections for increased visibility in addition to ground patrols.

In addition to enhanced ground and aerial patrols, in 2014 as part of its response to Governor Brown's state of emergency proclamations, PG&E piloted the use of LiDAR and spectral imagery. Initially, PG&E used LiDAR and spectral imagery to identify trees that may have been dead or dying and had the potential to fall into PG&E's distribution lines on select circuit segments in areas designated as "high," "very high," or "extreme" on CAL FIRE's Fire Resource and Assessment Program ("**FRAP**") fire risk scale. In 2015, PG&E used these same criteria to survey approximately 13,450 distribution circuit miles using LiDAR and spectral imagery technologies, and expanded the types of data collected to also include tree clearance. In 2016, PG&E used LiDAR in the CEMA program to supplement ground patrols in remote areas. Starting in 2017, the use of LiDAR in the CEMA program was discontinued and replaced with bi-annual ground patrols.

Finally, in response to the Governor's state of emergency proclamation, PG&E cooperated with California agencies and universities to monitor forest health and funded local Fire Safe Councils to support fuel reduction in high fire danger areas around PG&E's electric distribution facilities. PG&E also funded fire lookouts, aerial patrols, fire detection cameras, and public messaging campaigns seeking to educate the public about reducing wildfire risk and protecting life and property in the event of a fire.

iii. FRR Program

In 2014 and 2015, PG&E conducted further fire risk reduction VM work through its FRR program. This program utilized the 2012 Reax Engineering wildfire risk model, described in Section VII.B.i below, to identify 500 overhead line miles of high fire risk locations,

and applied the HTRS to the trees at those locations, prescribing and conducting tree work accordingly.

iv. Fuel Reduction Project

After the Commission adopted the final HFTD Map in January 2018, PG&E adopted its Fuel Reduction (“**FR**”) project, which supplements the enhanced work already underway pursuant to the CEMA program.

The goal of the FR project is to reduce vegetative fuels under, and up to 15 feet on either side of, power lines located within Tier 2 and Tier 3 HFTD areas. Between March and August 2018, PG&E completed this work on several thousand properties on approximately 150 distribution-line miles in Tier 3 HFTD areas. In 2019, FR work is continuing through the EVM program.

v. Accelerated Wildfire Risk Reduction

The AWRR program was implemented from September to December 2018 in Tier 3 HFTD areas. The program was implemented as a direct response to the October 2017 North Bay Fires, and the importance, in light of California’s changing climate, of prioritizing enhanced work in HFTD areas. AWRR was a short-term project that involved clearing overhanging branches with the potential to fall and contact primary voltage lines, mitigating the risk of hazardous trees striking PG&E facilities, working targeted tree species with a high likelihood of impacting primary voltage lines, and reducing fuel underneath and adjacent to high-voltage lines with property owner cooperation.

In accordance with prioritizing these enhanced efforts in response to the North Bay Fires, AWRR was structured unlike most other VM programs—rather than being carried out with the VM department, PG&E set up a separate incident command structure (“ICS”) to implement AWRR. PG&E completed work on approximately 650 miles through the AWRR

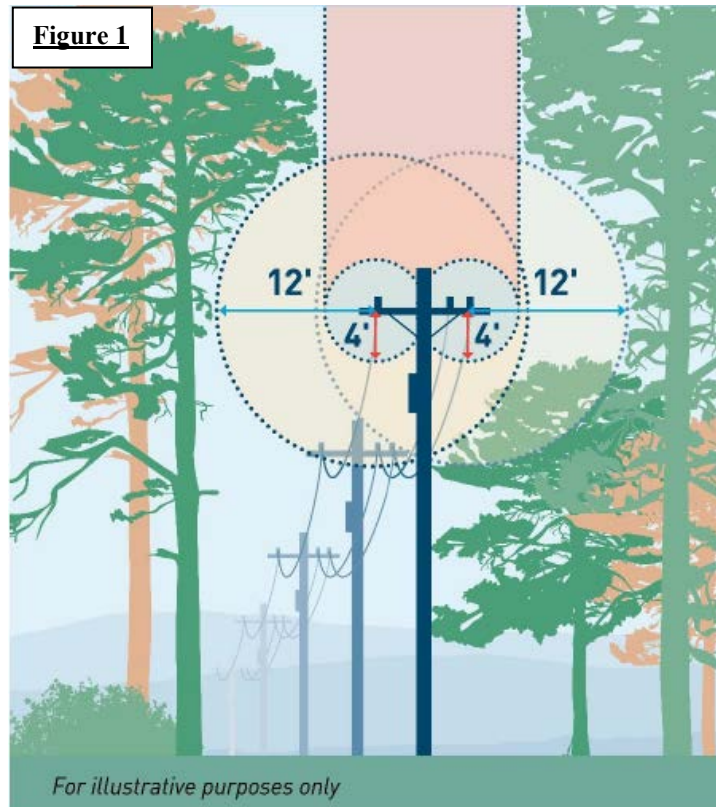
project. Beginning December 2018, activities addressed by AWRR are being addressed through the EVM program.

vi. Enhanced Vegetation Management

In December 2018, PG&E expanded its activities to address the increasing threat of wildfires in HFTD areas under the EVM program. The goal of EVM work is to further reduce wildfire ignitions associated with PG&E's overhead electric facilities in HFTDs by targeting the highest risk drivers for wildfire. EVM work, which is governed by PG&E's EVM Scope Bulletin, consists of two work streams. The first involves pre-inspectors patrolling HFTD areas and prescribing clearance work, hazard or FP tree removal, and overhang clearing. The second involves patrolling HFTD areas to create an inventory of high-risk healthy trees that pose an ignition risk under wildfire ignition conditions, including high winds. Tree work is performed under each work stream to mitigate any potential risk factors, though currently, the second work stream is still in the patrol and inventory phase.

Pursuant to the first EVM work stream, pre-inspectors performing clearance, hazard removal and overhang inspections through the EVM program are instructed to prescribe work in excess of PG&E's compliance obligations. Whereas routine pre-inspectors are generally instructed to remove all dead overhanging branches and to prescribe work to account for 12 months of tree growth, pre-inspectors performing EVM work are instructed to account for all branches above the conductors and for 18 months of growth. Hazard tree removal under EVM includes not only dead or dying trees, which PG&E is required to abate pursuant to PRC Section 4293 and GO 95, Rule 35, but also may include healthy trees with poor taper, trees with poor height to crown ratio, suppressed trees, and leaning trees. Under this work stream, overhanging clearing work must be conducted so that vegetation that is within a channel that extends above the conductors, four feet away from the two outermost conductors, or that will

grow within that channel in the next 18 months (*see* Figure 1 below) is cleared. Tree workers performing this EVM work are instructed to achieve conductor-to-sky clearance to establish the minimum four-foot overhang zone.



The second work stream involves inspecting and assessing all trees that are tall enough to strike electrical assets. This work targets trees with a clear path to contact lines and that exhibit potential identified risk factors laid out in PG&E's Hazard Tree Rating and Scoring Procedure. This work focuses on trees that are more than four feet from power lines (*i.e.*, not within the scope of the first work stream), and is designed to capture trees that, though located up to hundreds of feet from power lines, may still be tall enough to strike the line. Pursuant to this work stream, pre-inspectors create an inventory by recording trees that fit these criteria in the ArcCollector mobile application, and will eventually record this data in the Tree Tracker

system.²⁷ PG&E plans to address the initial assessment and treatment of high-risk tree species on all distribution overhead circuits in Tier 2 and Tier 3 HFTD areas over an eight-year period, which began in late 2018.

C. PG&E Is Increasing Oversight Over Contractor Training and Developing New Standards for Inspector Qualifications

i. Training²⁸

PG&E contracts with well-established, large scale vendors who employ qualified and trained pre-inspectors and tree workers, many of whom hold industry certifications. Prior to 2019, PG&E relied on its contractors to train their employees. As part of that process, PG&E also required its contractors to review PG&E's policies annually to drive consistency across its VM work. For example, the DRPP, which governs VM inspections, notes that the document's "Target Audience" includes "VM Contractors: Pre-Inspector (PI), Tree Contractor (TC), QC, QA, Vegetation Control (VC)." PG&E is producing the DRPP at PGE-2017Wildfires-OII-0000003047-071. As explained in footnote 4 above, after a diligent search and reasonable inquiry, PG&E is producing all vegetation management policies and procedures that were in effect at any time between January 1, 2013 and May 31, 2019 that it has identified pursuant to that search at PGE-2017Wildfires-OII-0000002873-4311; PGE-2017Wildfires-OII-0000006569-600. VM contractors are contractually obligated to conduct work in accordance with applicable laws, regulatory requirements, and PG&E's policies and procedures. As described above in Section II.A.i.(4), PG&E continually monitors contractor compliance with these obligations through QC reviews and QA audits.

²⁷ PG&E expects to roll out the Tree Tracker system by the end of 2019.

²⁸ In this Section, PG&E is responding to Sections III.A.6 and 7 of Attachment B.

As the risk of wildfires in Northern California has grown in recent years, PG&E has increased its oversight and direct involvement in the training of contractors' employees as part of its broader wildfire mitigation efforts.

By at least 2016, PG&E began issuing a schedule to its VM contractors specifying when the contractors should train their employees on each of PG&E's VM policies. In 2018, PG&E also began requiring each contractor to verify that its employees were trained on the required PG&E procedures by submitting quarterly rosters showing the attendance of their employees at trainings. These efforts better enable PG&E to maintain consistency across its VM work and to hold contractor companies accountable for satisfying their obligation to annually review PG&E's standards and policies with their employees. PG&E is producing the 2018 training schedule at PGE-2017Wildfires-OII-0000004317-321.

In January 2019, PG&E also launched its in-house training of pre-inspectors and tree workers. Pre-inspectors take a course called "Vegetation Management for Inspectors," and tree workers take a course titled "Vegetation Management for Tree Crews." In each course, trainers discuss the importance and purpose of the training, safety risks and solutions, and applicable PG&E VM procedures, among other things. Each course consists of a full day training session. The pre-inspector and tree crew courses consist of eight and nine modules, respectively, and each course was designed to take approximately eight hours. At the end of each training session, contractors' take a group assessment which measures their retention and understanding of the course material. The courses, which combine videos, hardcopy materials, and instructor-led training, are taught by a combination of PG&E personnel and outside trainers. Between them, these instructors have decades of training experience. In addition, the course materials give pre-inspectors and tree workers a thorough primer in PG&E's VM policies as well

as applicable laws and regulatory requirements. The “Vegetation Management for Tree Crews” course is offered in both English and Spanish, as most tree workers are native Spanish speakers. PG&E is producing the course materials for each course at PGE-2017Wildfires-OII-0000004312-5312. Since January, PG&E has trained more than 782 pre-inspectors and 1,943 tree workers pursuant to this program.

PG&E has recently developed a plan, the “VM Pre-Inspector Training Program,” to further expand its direct, in-house training of VM pre-inspectors and tree workers. Drafting of the Training Program curriculum is currently underway, and PG&E plans to complete the development of the curriculum by June 30, 2020. As currently conceived, the curriculum will be comprised of web-based training, scenario-based skills assessments, mentoring, and on-the-job training. The curriculum will include eight courses to be taught over one month: “Pre-Inspection Basics,” “Patrolling Line Segments,” “Assessing Growth Potential,” “Assessing Strike Potential,” “Assessing Major Woody Stem Exemptions,” “Assessing Non-Tree Hazards,” “Assessing Treatment of Re-Sprouting Stumps,” and “Determining Trees Requiring Work.” The courses will train pre-inspectors in PG&E standards and policies, as well as applicable laws and regulations. PG&E’s curriculum will contain an evaluation component, including scenario-based skills assessments that will allow PG&E to gauge pre-inspectors’ retention and understanding of the training material. A pre-inspector who does not pass a particular assessment on the first attempt will have two “remediation attempts” to re-take and pass that assessment. A pre-inspector who does not pass after the two additional attempts will not be permitted to contract with PG&E. Finally, the Training Program will include a mentorship component pursuant to which pre-inspectors will shadow and be audited by an experienced pre-inspector. More

information about this Training Program may be found in the Corrective Actions Report, filed on July 29, 2019, in response to the OII.

PG&E is also developing training modules for its new Tree Tracker system. This system, which permits real-time tracking of inspections and tree work, is designed to streamline VM activities and facilitate accurate and efficient data management. The trainings will teach contractors how to properly and effectively use Tree Tracker, as well as its partner application, Survey 123—a mobile application that contractors can use in the field to log customer refusals, environmental impediments, and other issues affecting their work. A “Planning and Scheduling” course, which will consist of two to three modules, is aimed at instructing pre-inspectors and tree workers on how to forecast and schedule in the Tree Tracker system. A “Back Office Administration” course is also being developed to provide Tree Tracker training with the goal of driving more consistent data management practices to support effective pre-inspection planning and thorough work completion of patrols and tree work. Finally, PG&E has developed a training course on iPhone and Android Basic for the Tree Tracker system. These trainings will take the form of instructor-led trainings by the end of 2019.

ii. Qualifications of Pre-Inspectors and Line Clearance Tree Trimmers²⁹

Historically, including from 2013 to December 2018, PG&E’s pre-inspection contracts required pre-inspectors, known as Consulting Utility Foresters (“CUFs”), to have at least two years’ experience in line clearance tree pruning work or equivalent experience as determined by PG&E. It was desired, but not required, that CUFs also have an AA degree in forestry, arboriculture, or a related field. During this period, PG&E’s pre-inspection contracts required Senior Consulting Utility Foresters (“SCUFs”) to have a two-year degree in forestry or

²⁹ In this Section, PG&E is responding to Sections III.A.6 and 8 of Attachment B.

a related field, and/or two years' experience in line clearance tree pruning work or equivalent experience as determined by PG&E. In addition, these contracts required SCUFs to become certified arborists or certified utility specialists within one year of becoming a supervisor. QA Auditors (“QAAs”) were required to have a two-year degree in forestry or a related field, and/or two years' experience in line clearance tree trimming work or equivalent experience as determined by the QA program manager.

As of 2019, PG&E's pre-inspection contracts now require CUFs, depending on their seniority, to obtain relevant industry certification within an allotted time frame. These pre-inspection contracts divide pre-inspectors into four ascending categories—Levels I through IV. New pre-inspectors (“CUF-I”) must have, at a minimum, either one year of arboricultural experience, a relevant industry certification, or a two or four-year degree in a related field. CUF-II pre-inspectors must have at least one year of experience working on PG&E projects. CUF-III pre-inspectors must have at least two years of experience working on PG&E projects, and are required to become certified arborists or registered professional foresters within one year. Finally, CUF-IV pre-inspectors must have at least three years of experience working on PG&E projects, and must have obtained one of the foregoing certifications or certification as a utility specialist.

Since at least 2013, PG&E's line clearance tree trimming contracts have required line clearance tree trimming contractors to provide at least the following personnel: Field Supervisors, Foremen, Patrolmen, Climbers, Apprentice Climbers, and Groundmen/Flagmen. Field Supervisors are required to have at least five years of line clearance tree work experience, and to have been a qualified line clearance tree worker or to have equivalent experience as determined by the Vegetation Program Manager (“VPM”). In addition, Field Supervisors are

required to stay current with new arboricultural practices and provide her or his employees up-to-date training on any new practices or techniques. Foremen are required to have at least 18 months of line clearance tree work experience, and to be a qualified line clearance tree worker or to have equivalent experience as determined by the VPM. Patrolmen are required to be familiar with, based on their training and/or experience, the requirements of line clearance tree pruning. Climbers are required to have at least 18 months of experience in line clearance tree work and possess a valid certification document issued by the contractor that she or he has met state-approved training requirements to work within ten feet of energized conductors. Apprentice Climbers are required to have at least three months of experience as a Groundman (an entry-level tree trimmer working under the direct supervision of the Foreman).

PG&E has not historically collected or maintained information about the certifications of contractors' individual employees. PG&E did, in the course of responding to a data request from the Commission in December 2018, identify the names and certifications of certain pre-inspectors who were known to have worked at the incident locations associated with the October 2017 North Bay Fires. A table listing certifications for the pre-inspectors for which that information is available is included at PGE-2017Wildfires-OII-0000005777-783. Pre-inspectors who are ISA-certified arborists are required, by the accrediting bodies, to complete continuing education requirements as well as recertification every three years in order to maintain these certifications.

D. Document Entitled “Summary and Analysis of Vegetation Related Fire Incidents on PG&E Electric Powerlines 2007-2012”³⁰

The Commission has requested that PG&E provide the document dated February 7, 2013 that is described in the section-heading above. PG&E is producing this document at PGE-2017Wildfires-OII-0000002862-872.

E. Employee At-Risk Pay Metrics³¹

From 2013 to 2019, PG&E’s Short-Term Incentive Plan (“**STIP**”) has included certain metrics related to vegetation management. Specifically, between 2013 and 2016, STIP included a Transmission and Distribution (“**T & D**”) Wires Down metric. The metric counted the number of instances where an electric transmission or primary distribution conductor was broken and fell from its intended position to rest on the ground or a foreign object. The metric did not include secondary wires, wires down reported on Major Event Days (as defined by the Institute of Electrical and Electronics Engineers (“**IEEE**”) Standard 1366), or wires down that did not result in an outage (because outage information is what was used to calculate the number of wires down).

Between 2013 and 2017, STIP included a System Average Interruption Duration Index (“**SAIDI**”) metric. SAIDI is the total number of customer interruption minutes caused by sustained outages (*i.e.*, outages lasting five minutes or longer) divided by the total number of customers. The metric did not include outages reported on Major Event Days (as defined by the IEEE Standard 1366), outages including only secondary wires, or outages caused by CAISO / Generation.

³⁰ In this Section, PG&E is responding to Section III.A.1 of Attachment B.

³¹ In this Section, PG&E is responding to Section II.F of Attachment B as to Topic A, Vegetation Management.

In 2017, STIP included an Electric Overhead Conductor Index metric, which used a weighted calculation based on the results of three sub-metrics: Infrared Inspection, Overhead Conductor Replacement and PS&R Targeted VM Work. The PS&R Targeted VM Work metric tracked the number of trees trimmed and/or removed as part of the Reliability program (then referred to as PS&R). The metric did not include trees worked as part of the compliance-based, routine transmission and distribution programs or trees worked as part of the CEMA program.

Since 2018, STIP has included a Public Safety Index (“**PSI**”) metric—a weighted index of three programs that evaluate compliance in the Commission’s HFTDs: Vegetation Non-Exempt Pole Clearing (25 percent), Routine Line VM (50 percent) and Tree Mortality Mitigation (25 percent). The Vegetation Non-Exempt Pole Clearing index measured the VC QC results and was calculated as a percentage of conformant subject poles within the overall population of subject poles reviewed in the HFTD. The Routine Line VM index measured the results of VM QA audits performed on distribution and transmission power line segments within HFTDs and was calculated as a percentage of compliant trees within the overall identified population of trees. The Tree Mortality Mitigation index measured the effectiveness of the CEMA program and was calculated as a percentage of trees with work completed within 180 days of identification within the total number of trees identified for work in the HFTD.

In 2019, PSI was revised as an equally-weighted metric of two programs: EVM (50 percent) and System Hardening (50 percent). The EVM metric measures completed circuit miles of vegetation cleared under the EVM program within high-fire risk areas and does not include miles completed prior to or after 2019. The System Hardening metric measures retired circuit miles of fire safe design application within high-fire risk areas as identified and prioritized

by the distribution wildfire risk model generated in 2018 and does not include miles completed prior to or after 2019.

The STIP program is developed annually, and applies to a broad range of employees working across various departments within the company, such as operations, engineering, customer organization, finance, human resources, information technology, and legal. There are approximately 9,000 employees who participate in the STIP, and the STIP metrics apply equally to all participants.

On June 19, 2019, PG&E filed two motions in the bankruptcy court for an entry of an order to approve an at-risk incentive program for the CEO and an at-risk incentive program for 12 senior executives. The proposed incentive programs are subject to the same performance metrics and weightings as the 2019 STIP. Both proposed programs also include an additional PSI modifier whereby the total awards payout for each of the program participants will be reduced by 25 percent if the aggregate PSI metric score is at or above threshold but below target, or by 50 percent if the aggregate PSI metric score is below threshold. The motions remain pending before the bankruptcy court.

III. RECLOSERS

Reclosing devices are used to quickly and safely de-energize lines when a fault is detected and “test” back into lines to determine if the fault has cleared. The devices ensure that customers are not left without power for extended periods when a fault is only transient and allow PG&E to maintain a safe and reliable network. PG&E’s policies on the use of reclosing devices in high fire risk areas have evolved over time in response to increasing wildfire risk within PG&E’s service territory driven by climate change. PG&E’s current Wildfire Reclosing Disable Program disables the reclosing function on over 2,700 devices³² serving Tier 2 (“elevated”) and Tier 3 (“extreme”) fire risk areas identified in the 2018 HFTD Map, based on daily fire ratings. This program was expanded from PG&E’s initial Recloser Disabling Pilot Program that had been in development since 2015 and was formally launched in May of 2017. Over the next 12 months, PG&E will continue to expand the Wildfire Reclosing Disable Program by installing additional automated devices on lines serving Tier 2 and Tier 3 areas in support of the Public Safety Power Shutoff (“PSPS”) program.

As described in detail in Chapter 2A (Wildfire Risk Policy and Overview) of PG&E’s 2020 General Rates Case (“GRC”) Filing, while recloser disabling can reduce the risk of ignitions, it can also have an adverse effect on reliability, and, therefore, public safety. PG&E is producing excerpts from its 2020 GRC Filing at PGE-2017Wildfires-OII-0000005883. As explained further below, when recloser disabling is activated, the downstream section of the circuit remains de-energized and, consequently, customers remain without power until the required patrol has been conducted and any faults cleared.

³² Reclosing devices include Circuit Breakers, Line Reclosers, FuseSavers, and TripSavers on distribution and transmission circuits. Approximately 2,000 of the reclosing devices are Line Reclosers.

PG&E's reclosing devices policies cover both operation and settings of reclosing devices. Recloser operations policies address the circumstances under which PG&E enables or disables reclosing devices and how patrols are conducted before re-energization. Recloser settings policies address when and how a reclosing device operates in response to a fault current.

A. Wildfire Reclosing Disable Program³³

i. SCADA Enabling Efforts

In both its 2011 and 2014 GRC filings, PG&E requested funding to install Supervisory Control and Data Acquisition (“SCADA”) technology on reclosing devices in high fire risk areas. In part, SCADA enabling was proposed to allow PG&E to remotely de-energize lines (*e.g.*, at the request of firefighting authorities) in high fire risk areas and also to enable PG&E to remotely modify recloser settings to address wildfire risk in real time. As of January 1, 2013, 90 reclosing devices had been upgraded with SCADA technology in Urban Wildland Fire (“UWF”) areas and Other Wildland Fire (“OWF”) areas, parts of PG&E's territory that PG&E had identified as having an elevated wildfire risk.³⁴ These SCADA enabling efforts continued between 2013 and 2015 with PG&E conducting technological evaluations to develop the capabilities of SCADA technology on its network, including developing software that enables distribution operators to issue “group commands” to modify the settings on multiple reclosing devices simultaneously. A considered roll-out of SCADA technology, including evaluating technology developments and developing appropriate software, was necessary to equip the SCADA network within high fire risk areas with the capabilities necessary for the Recloser

³³ In this section, PG&E is responding to Sections II.A, C, D, and E as to Topic B, Reclosers and Section III.B.3-6 of Attachment B. Because PG&E did not take actions regarding reclosers directly in response to the 2014 State of Emergency proclamation, the February 8, 2014 letter from SED, or Resolution ESRB-4, PG&E is not providing a response to Section II.B as to Topic B, Reclosers of Attachment B.

³⁴ See below Section VIII.B.i. for a description of OWF and UWF areas.

Disabling Pilot Program and the current Wildfire Reclosing Disable Program. This considered approach also ensured that PG&E was able to make SCADA-enabling investments in the appropriate areas as PG&E's understanding of wildfire risk within its service territory evolved.

ii. 2017 Recloser Disabling Pilot Program³⁵

In 2015, PG&E began developing a program to disable automatic reclosing on certain reclosing devices in high-risk wildfire areas during California's fire season (the "**Pilot Program**"). By disabling reclosing, the automated functionality of the reclosing device, which "tests" the line for ongoing faults by momentarily re-energizing it, is turned off. Instead, when the reclosing device observes a fault, it operates (trips) and remains open (locks out), meaning that the line downstream remains de-energized.

The initial stage of the Pilot Program, building upon earlier SCADA enabling efforts described above, focused on equipping specific reclosing devices in high-risk wildfire areas with SCADA capability, which would enable PG&E to control the devices remotely. By the end of 2016, PG&E completed the installation of SCADA capabilities on the targeted devices. The Pilot Program included all reclosing devices that were (1) located in areas within the top ten percent risk of fire danger as designated by "Cal Fire Map 1," which was the precursor to the statewide HFTD Map adopted by the Commission in January 2018, and (2) able to be remotely controlled by SCADA technology. In total, 38 SCADA-enabled line reclosers on distribution lines were part of the Pilot Program. PG&E is producing a July 29, 2016 presentation to PG&E's Risk & Compliance Committee that details the decision-making process behind the Pilot Program at PGE-2017Wildfires-OII-0000005870.

³⁵ This section is responding to Section III.B.6 of Attachment B.

The Pilot Program was implemented in May 2017—before the start of the 2017 wildfire season. As part of the program, PG&E remotely disabled reclosing on those 38 devices on each day that the corresponding fire potential index (“**FPI**”), generated by PG&E on a daily basis (as described further below), reached “Very High” or “Extreme.”³⁶ When devices in the Pilot Program operated and remained open, PG&E’s policy (*see* Utility Bulletin PG&E TD-1464B-001 described below) required a PG&E employee to patrol the overhead lines in the involved protection zone and clear all trouble found before re-energizing the involved protection zone.

iii. 2018 Wildfire Reclosing Disable Program³⁷

Following the October 2017 North Bay Fires, the Commission adopted the 2018 HFTD Map, which provided further guidance on wildfire risk and identified large areas of PG&E’s service territory as having high wildfire risk. Ahead of the 2018 wildfire season, PG&E expanded the Pilot Program to include all reclosing devices on lines serving or running through Tier 2 and Tier 3 areas identified in the 2018 HFTD Map (the “**Wildfire Reclosing Disable Program**”).

Under the expanded program, if the protection zone of a reclosing device in the program feeds an area in Tier 2 or Tier 3 with an FPI forecast that is very high or extreme, the automatic reclosing functionality of the reclosing device is disabled. If the recloser is SCADA-enabled, the reclosing functionality is adjusted daily as necessary based on the FPI for specific areas. If the recloser is not SCADA-enabled, PG&E manually disables automated reclosing for the entire fire season.

³⁶ In cooperation with CAL FIRE, PG&E has recently changed the way it describes its FPI rating scale, using a numeric RPI rating (R1 to R5-Plus) instead of Low to Extreme-Plus.

³⁷ This section is responding to Section III.B.8 of Attachment B.

The current program includes over 2,700 reclosing devices on PG&E's distribution lines. Consistent with PG&E's WSP, as of June 1, 2019, all line reclosers in HFTDs have been SCADA-enabled and are capable of being disabled remotely.³⁸ In addition, approximately 87% of the distribution reclosing devices that extend into the Tier 2 and Tier 3 HFTD areas are SCADA-enabled.³⁹

Transmission reclosing devices located on nearly 400 transmission lines with voltages of 115 kV or below, serving or running through HFTD areas, are also included in the Wildfire Reclosing Disable Program. Over 98 percent of these transmission devices are SCADA-enabled and are capable of being disabled remotely. As with distribution devices that are not SCADA-enabled, PG&E manually disables the few remaining transmission devices for the entire fire season.

iv. Further Expansion of the Wildfire Reclosing Disable Program

Pursuant to its WSP and as described in its 2020 GRC filing, PG&E is installing additional SCADA-enabled devices across its distribution network on the boundaries of HFTDs to minimize customer impact during PSPS events. The devices being installed include Line Reclosers, Motorized Switch Operators (“MSOs”) and FuseSavers. Since some of these devices will have reclosing functionality, this results in an expansion of the Wildfire Reclosing Disable Program. PG&E currently intends to install approximately 750 additional SCADA-enabled devices within the next twelve months. As of August 1, 2019, PG&E has installed 128 new devices in these areas.

³⁸ At the end of 2018, approximately 70% of line reclosers in HFTDs were SCADA-enabled, with the remaining 30% of devices' automatic testing being manually disabled at the beginning of the wildfire season.

³⁹ Almost all the remaining devices that are not SCADA-enabled and serve HFTD areas are TripSaver devices, which cannot be SCADA-enabled.

B. Historical Evolution of PG&E's Recloser Operations Policy⁴⁰

As of January 1, 2013, PG&E had a pre-existing policy—Utility Operations Standard S1464, “Fire Danger Precautions in Hazardous Fire Areas”—that addressed testing and patrol requirements in high fire risk areas. PG&E is producing this Standard at PGE-2017Wildfires-OII-0000005944. This Utility Standard set forth PG&E's operations procedures for reclosing devices in fire index areas (“FIA”) with a fire danger rating of “Very High” or “Extreme” by CAL FIRE and the United States Forest Service. The fire danger rating was set daily during the California fire season.

Under S1464, PG&E employees were directed not to close automatic devices such as line reclosers and circuit breakers in fire index areas rated “Very High” or “Extreme” that had operated automatically and locked out until the overhead lines in the involved protection zone were patrolled and all found trouble cleared. For lines without automatic testing, S1464 directed that the lines may be tested either (a) manually one time if that test can be made within five minutes of the initial relay, or (b) if a test cannot be made within five minutes of the initial relay, then the overhead lines must be patrolled and all found trouble cleared before making a manual test.

In April 2013, S1464 was reformatted into the new Utility Standard layout and became Utility Standard TD-1464S, “Fire Danger Precautions in Hazardous Fire Areas”, which PG&E is producing at PGE-2017Wildfires-OII-0000005937. Utility Standard TD-1464S was updated in June 2015 to require that all PG&E employees covered by TD-1464S (*i.e.*, all field and operational personnel who work on or near associated facilities and equipment) complete

⁴⁰ In this section, PG&E is responding to Sections II.A, B, C, D, E and G of Attachment B as to Topic B, Reclosers and Sections III.B.3-6 of Attachment B.

annual training on the Utility Standard by May 1 of each year, prior to the start of the California wildfire season. PG&E is producing the June 2015 update of TD-1464S is at PGE-2017Wildfires-OII-0000005848.

In late 2015, PG&E shifted to using daily FPI forecasts from PG&E's meteorology department when CAL FIRE stopped providing its fire danger ratings to PG&E. PG&E's meteorology department developed a model that generated daily FPI forecasts ranging from "Low" to "Extreme" using multiple inputs, including PG&E's Operational Mesoscale Modeling System ("POMMS"), the Fosberg Fire Weather Index, the U.S. National Fire Danger Rating System, and the Nelson Dead Fuel Model, as well as live fuel moisture data and observations from PG&E and partner weather stations. Utility Standard TD-1464S was updated in May 2017 to replace CAL FIRE index ratings with the newly developed PG&E FPI forecasts. PG&E is producing this update at PGE-2017Wildfires-OII-0000005855. When PG&E implemented its Public Safety Power Shutoff Program in 2018, it added an "Extreme Plus" FPI rating to its forecasts. An "Extreme Plus" rating, based on elevated fire danger plus the occurrence of strong outage producing winds with extremely dry fuels, may warrant de-energization of PG&E lines in the interests of public safety.

In addition, in order to implement the Recloser Disabling Pilot Program, described above, in February 2017, PG&E published Utility Bulletin, TD-1464B-001, "Fire Index SCADA Scheme," which modified Utility Standard TD-1464S to prohibit five minute testing for automatic protective devices that were part of the Recloser Disabling Pilot Program. PG&E is producing TD-1464B-001 at PGE-2017Wildfires-OII-0000005880.

Most recently, PG&E updated its reclosing operations policy in October of 2018 through revisions to Utility Bulletin TD-1464B-001, which PG&E is producing at PGE-

2017Wildfires-OII-0000005862. The updated Utility Bulletin requires that during Extreme Plus Events, no test may be performed until a full patrol of the entire overhead de-energized zone—not just the protection zone—is complete. It also extended the prohibition on five minute testing to all reclosing devices within an FIA with a rating of Very High or Extreme.

C. PG&E's Reclosing Devices Settings Policy

From January 1, 2013, to present, PG&E's recloser settings policy has been governed by PG&E's Electric Planning Manual, Chapter 8—Protection Handbook. PG&E is producing this Handbook at PGE-2017Wildfires-OII-0000006503. Each reclosing device has its own protection settings or configuration. PG&E's area engineers make individualized determinations as to the appropriate configuration for each protective device, including reclosing devices, guided by considerations such as: (1) the number of times the device should test before locking out, (2) the current at which the device should open, and (3) the length of time the device waits upon detection of a fault before operating. Reclosing devices are set to test zero, one, two, or three times before locking out in the open position. In determining the number of times that a reclosing device tests and whether a device is set to test at all, engineers consider, among other things: (1) the number of customers downstream of the device, (2) characteristics of the circuit, including the number of underground or overhead line sections in the circuit, (3) fire risk mitigation concerns, and (4) coordination among protective devices along the same line.

D. List of Reclosing Devices⁴¹

PG&E will produce by August 23, 2019, a list of reclosing devices across all of PG&E's circuits as of October 8, 2017 indicating the location of the device, the FIA that the device is located in, and whether it is located within a Tier 2 or Tier 3 area according to the

⁴¹ This section is responding to Section III.B.1 and 2 of Attachment B.

HFTD Map. PG&E will also produce by August 23, 2019, a list of reclosing devices, with the same information, as of May 31, 2019.

E. Data on Reclosing Device Operation⁴²

PG&E will produce by August 23, 2019, an index of ILIS Outage Reports that indicate each reclosing device that automatically operated upon a fault, momentary or sustained, at any time from October 8 through November 20, 2017, within the fire footprint of each of the 16 fires referenced in the OIL.

F. Employee At-Risk Pay Metrics⁴³

PG&E did not include at-risk pay metrics relating to the use of recloser devices in high fire risk areas in its incentive plans between 2013 and 2019.

⁴² In this section, PG&E is responding to Section III.B.7 of Attachment B.

⁴³ In this section, PG&E is responding to Section II.F of Attachment B as to Topic B, Reclosers.

IV. PROACTIVE DE-ENERGIZATION

PG&E developed its Public Safety Power Shutoff program, a comprehensive proactive de-energization program, following the October 2017 North Bay Fires in advance of the 2018 fire season. PG&E did not implement a de-energization program before that time because it had not determined that the wildfire risk in its territory met the high threshold warranting a de-energization plan set by the Commission, especially in view of the countervailing risks associated with de-energization.⁴⁴ As discussed in more detail below, the decision to proactively de-energize power lines must be carefully weighed because it poses significant public safety risks that can outweigh the benefit of the potential reduction in wildfire risk. While catastrophic power line fires caused by Santa Ana windstorms in 2007 prompted utilities like San Diego Gas & Electric Company (“**SDG&E**”) to develop de-energization plans in Southern California as early as 2008, it was widely understood that Northern California faced a substantially different, and lower, wildfire risk. PG&E therefore did not believe that “the benefits of shutting off power in terms of a net reduction in fires outweigh[ed] the substantial costs, burdens, and risks that shutting off power would impose on customers and communities affected by the shut off” required for a de-energization program.⁴⁵ That calculus changed in October 2017 with the North Bay Fires.

⁴⁴ Because PG&E did not implement its PSPS program until the 2018 fire season, it is not providing a response to Sections II.A-C of Attachment B as to Topic C, PSPS and Sections III.C.2-4 of Attachment B. Those sections request information for earlier periods when PG&E did not have a proactive de-energization program. PG&E likewise has not conducted any studies, analyses, or similar evaluations of whether PG&E should have developed a de-energization program earlier than it did, so it does not have documents responsive to Section III.C.8 of Attachment B.

⁴⁵ See Decision Adopting Regulations to Reduce Fire Hazards Associated with Overhead Power Lines and Communication Facilities, Jan. 18, 2012, at 170, http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/157605.pdf (“**CPUC Decision 12-01-032**”).

Following the October 2017 North Bay Fires, not only PG&E, but also the Commission, California legislators, and California’s emergency responders, recognized that climate change and years of drought had created a “new normal” that demanded increased wildfire mitigation efforts across the state to address the growing wildfire threat. As such, PG&E implemented numerous additional precautionary measures to further reduce the risk of wildfires in its territory, including its PSPS Program to proactively de-energize lines that traverse Tier 3 HFTD areas under extreme fire risk conditions during the 2018 fire season. The Commission expanded its de-energization regulations to apply to all investor-owned utilities, and it initiated a Rulemaking in December 2018 “to examine its rules allowing electric utilities under the Commission’s jurisdiction to de-energize power lines in case of dangerous conditions that threaten life or property in California” (“**PSPS OIR**”).⁴⁶ And the California legislature passed Senate Bill (“**SB**”) 901, which, among other things, requires utilities with equipment in areas with significant fire risk to prepare a wildfire mitigation plan annually for review by the Commission. As discussed in more detail below, PG&E’s 2019 WSP (its first plan submitted pursuant to SB 901) significantly expands its PSPS program scope to include all distribution and transmission lines that cross Tier 2 and Tier 3 HFTD areas.

⁴⁶ Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions, Dec. 19, 2018, at 1, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M251/K987/251987258.PDF> (“**PSPS OIR Decision**”).

A. PG&E's Consideration of Proactive De-Energization Prior to October 2017⁴⁷

PG&E's evaluation of whether it should implement a proactive de-energization plan prior to the October 2017 North Bay Fires must be understood in the context of the significant risks associated with de-energization, the Commission's rulings concerning whether and in what circumstances a utility may proactively de-energize to prevent a wildfire in view of those risks, and what was generally understood at the time to be a lower risk of wind-driven, catastrophic power line fires in Northern California.

i. 2009 SDG&E De-Energization Decision

In 2008, SDG&E was the first California utility to develop a permanent proactive de-energization program, which it did largely in response to the Witch, Guejito, and Rice fires, three devastating fires sparked during a Santa Ana wind firestorm in Southern California in 2007.⁴⁸ SDG&E proposed proactive de-energization to address what was at the time a heightened risk unique to its service territory, declaring in its application that "[t]here are a number of significant changes in the conditions that are prevalent in Southern California and/or SDG&E's service territory that support implementation of proactive de-energization."⁴⁹

SDG&E submitted what it called its "Power Shut-Off Plan" to the Commission for review on December 22, 2008, seeking permission to shut off electricity during periods of extreme fire danger in order to prevent potential power line ignitions.⁵⁰ SDG&E shared a draft

⁴⁷ In this Section, PG&E is responding to Section III.C.7 of Attachment B.

⁴⁸ See Decision Denying Without Prejudice San Diego Gas & Electric Company's Application to Shut Off Power During Periods of High Fire Danger, Sept. 18, 2009, at 24, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/107143.PDF ("CPUC Decision 09-09-030").

⁴⁹ Application of San Diego Gas & Electric Company (U 902-E), Filed Dec. 22, 2008, at 2, https://www.sdge.com/sites/default/files/application_20_0.pdf.

⁵⁰ CPUC Decision 09-09-030 at 3.

of its application with PG&E the day before it was filed with the Commission. PG&E did not participate in the proceeding, but monitored the proceeding throughout 2009.

The Commission denied SDG&E's application for approval of its Power Shut-Off Plan on September 18, 2009. In its decision, the Commission stated that it would approve SDG&E's plan only if SDG&E could demonstrate that "shutting off power results in a net reduction in wildfire ignitions during hazardous fire conditions" and "the benefits of SDG&E's Power Shut-Off Plan outweigh the adverse impacts."⁵¹ The Commission found that SDG&E had not satisfied that standard.

The Commission focused in particular on the increased safety risks associated with de-energization during times of fire danger, including:

- Disruption of landline and wireless telephone service, potentially limiting customers' ability to report fires;
- Disruption of telephone, television, radio, and internet service, potentially eliminating the primary means of learning of approaching fires and receiving evacuation notices and other critical information;
- The disproportionate impact on people with disabilities who rely on TTYs and computers to receive important communications and evacuation notices, and who may need to call for assistance in an evacuation;
- Disabling of electric garage door openers, potentially trapping elderly or disabled individuals who may not be able to open their garage doors manually;
- Loss of power to traffic signals and street lights, potentially causing accidents and making evacuation more difficult; and
- Loss of power to electric-powered pump stations that are critical to maintaining the water supply, including water necessary to fighting fires.⁵²

⁵¹ *Id.* at 41.

⁵² *Id.* at 51-53.

The Commission also noted that a power shutoff would cause customers to use alternative sources for light, heat, and cooking, including candles, lanterns, camp stoves, barbecues, fireplaces, and portable generators. The Commission found that “the risk of fires from other sources would be multiplied manyfold during a power shut-off event, perhaps surpassing the risk of wind-related power-line fires that the Power Shut-Off Plan is intended to address.”⁵³

Based on this risk assessment, the Commission declined to authorize SDG&E’s Power Shut-Off Plan. The Commission concluded, however, that SDG&E could nevertheless de-energize “in emergency situations when necessary to protect public safety” pursuant to its authority under existing law.⁵⁴ Specifically, the Commission held that SDG&E would have authority under § 451 and § 399.2(a) of the Public Utilities Code to shut off power in order to protect public safety “if Santa Ana winds exceed the design limits for SDG&E’s system and threaten to topple power lines onto tinder dry brush.”⁵⁵ Thus, the Commission limited the circumstances under which SDG&E could de-energize to situations where its electric facilities

⁵³ *Id.* at 45. Notably, “[a]ll the intervening parties except SCE oppose[d] SDG&E’s Power Shut-Off Plan.” *Id.* at 7. Those intervening parties included the Mussey Grade Road Alliance, Pacific Bell Telephone Company d/b/a AT&T California and affiliated entities, the California Cable and Telecommunications Association, the California Farm Bureau, CoxCom, Inc., Cox California Telecom, L.L.C., the Commission’s Consumer Protection and Safety Division, CTIA-The Wireless Association, the Commission’s Division of Ratepayer Advocates, Disability Rights Advocates, the San Diego County Superintendent of Schools, a consortium of six municipal water districts (Valley Center Municipal Water District, Ramona Municipal Water District, Padre Dam Municipal Water District, Rainbow Municipal Water District, Fallbrook Public Utilities District, and Yuima Municipal Water District), and Utility Consumers Action Network. *Id.* at 4-5. The intervening parties focused on the adverse impacts of de-energization, which they argued would “impose many significant cost, burdens, and risks on customers and communities in the areas where power is shut off.” *Id.* at 31.

⁵⁴ *Id.* at 61.

⁵⁵ *Id.* at 61-62; *see also* Decision Granting Petition to Modify Decision 09-09-030 and Adopting Fire Safety Requirements for San Diego Gas & Electric Company, Apr. 26, 2012, at 11, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/165063.PDF (“**CPUC Decision 12-04-024**”) (describing CPUC’s holding in CPUC Decision 09-09-030).

(e.g., lines, poles, and other structures) might fail because winds exceeded the limits its facilities were designed to withstand. Finally, the Commission held that, if SDG&E were to de-energize, the Commission would subsequently review the reasonableness of the decision based on the Commission's prudent operator standard.⁵⁶

ii. 2012 SDG&E De-Energization Decision

In April 2012, the Commission revisited its 2009 SDG&E decision when the Disability Rights Advocates (“**DisabRA**”) petitioned to modify the decision “to provide notice and mitigation, to the extent feasible and appropriate, whenever SDG&E shuts off power for public-safety reasons.”⁵⁷ In addition to addressing DisabRA's request for notice and mitigation, the Commission addressed whether SDG&E had authority to shut off power when wind speeds exceeded 56 miles per hour, the wind speed that most of SDG&E's overhead power lines were designed to withstand.⁵⁸

The Commission held that although SDG&E had authority to de-energize if Santa Ana winds exceed the design limits for SDG&E's system and threaten to topple power lines onto tinder dry brush, it did not have blanket authority to de-energize whenever wind gusts exceeded 56 mph, but should de-energize only as “a last resort” after carefully balancing the threat of an ignition against the serious risks associated with shutting off power:

As a general principle, SDG&E should keep power flowing when wind speeds exceed 56 mph. Without power, numerous unsafe conditions can occur. Traffic signals do not work, medical life support equipment does not work, water pumps do not work, and communication systems do not work. As the California Legislature recognized in § 330(g), ‘[r]eliable electric service is of utmost importance to the safety, health, and welfare of the state's citizenry and economy.’ Consequently, SDG&E should shut off power only

⁵⁶ CPUC Decision 09-09-030 at 62.

⁵⁷ CPUC Decision 12-04-024 at 2.

⁵⁸ *See id.* at 11.

as a last resort, and only when SDG&E is convinced there is a significant risk that strong Santa Ana winds will topple power lines onto flammable vegetation. This is consistent with SDG&E's Commission-approved tariffs, which acknowledge that SDG&E has an obligation to provide electrical service on a continuous basis.⁵⁹

Thus the Commission's 2012 SDG&E decision clarified that winds strong enough to topple SDG&E's electric infrastructure would be necessary, but not sufficient, to justify de-energization. In addition, SDG&E would need to be convinced that there was a significant risk that its equipment would in fact fail and that the failure would cause its power lines to topple onto flammable vegetation in high fire risk conditions.

iii. 2012 Fire Safety OIR Decision

Also in 2012, the Commission adopted additional regulations "to reduce the fire hazards associated with overhead power-line facilities and aerial communication facilities in close proximity to power lines" in its Decision Adopting Regulations to Reduce Fire Hazards Associated with Overhead Power Lines and Communication Facilities ("**CPUC Decision 12-01-032**").⁶⁰ CPUC Decision 12-01-032 also adopted interim fire-threat maps for electric utilities to use to implement the fire prevention measures set out in the decision. The Commission adopted the Reax map as the interim fire-threat map for Northern California and the FRAP map as the interim fire-threat map for utilities other than SDG&E for Southern California. The Reax map therefore applied to PG&E's territory in Northern California, and the FRAP map applied to PG&E's territory in Santa Barbara County, which the CPUC defined as part of Southern California.⁶¹ Notably, just 15% of PG&E's territory was designated as having an elevated

⁵⁹ *Id.* at 29-30.

⁶⁰ CPUC Decision 12-01-032 at 2-5.

⁶¹ *Id.* at 181.

wildfire risk on the applicable maps, and a portion of that territory was in Santa Barbara County in Southern California. The interim maps adopted by the Commission in 2012 were the Commission’s operative fire-threat maps until the Commission adopted permanent fire-threat maps in January 2018.⁶²

CPUC Decision 12-01-032 repeatedly noted the differences between wildfire risk in Northern California and Southern California, and applied different fire mitigation requirements based on those differences. For example, the Commission imposed an absolute requirement to develop fire prevention plans only for territories in Southern California. By contrast, Northern California utilities were obligated to develop plans only if those utilities determined their overhead facilities were located in areas of high fire risk. The Commission explained this distinction between Northern and Southern California as follows: “[u]nlike Southern California, the need for electric utilities to develop fire-prevention plans in Northern California is not clear cut. To our knowledge there has never been an instance in Northern California where strong winds have caused power lines to ignite large-scale wildfires.”⁶³ The Commission likewise concluded that communication infrastructure providers could complete fewer safety inspections in high fire-threat areas of Northern California because “[t]here is no history of catastrophic power-line fires in Northern California, and Northern California does not experience Santa Ana winds that contribute significantly to the risk of catastrophic power-line

⁶² See Decision Adopting Regulations to Enhance Fire Safety in the High Fire-Threat District, Dec. 21, 2017, at 158, D-1, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M200/K976/200976667.PDF> (“**CPUC Decision 17-12-024**”).

⁶³ CPUC Decision 12-01-032 at 49.

fires in Southern California. Therefore, because the overall risk of power-line fires is lower in Northern California, we can safely reduce the frequency (and associated cost) of inspections.”⁶⁴

Although the Commission’s decision did not require Northern California utilities to develop fire-prevention plans as a matter of course, it did require each Northern California investor-owned utility (“**IOU**”) to conduct an analysis “to determine the risk of catastrophic power-line fires in its service territory” and develop a fire-prevention plan if it determined there was such a risk.⁶⁵ The Commission provided a formula for the utilities to apply that looked at the probability of wind gusts exceeding the maximum working stresses for the utility’s electrical facilities during a red flag warning. PG&E conducted the analysis required and found that the chance of wind gusts exceeding PG&E design limits during a red flag warning was only 0.016% in any given year.⁶⁶

Because its Santa Barbara County territory was located within the Commission’s definition of Southern California, PG&E filed fire-prevention plans in 2012 (covering 2012 and 2013), 2014 (covering 2014), 2015 (covering 2015, 2016), and 2017. Even though the plan was only required for Southern California, PG&E expanded its plan to cover its entire service area—both in Northern California and Southern California. With respect to its territory in Northern California, PG&E’s analyses in its 2014, 2015, and 2017 fire-prevention plans found “the

⁶⁴ *Id.* at 74; *see also id.* at 46 (noting Mussey Grade Road Alliance statement that it is not aware of a wind hazard in Northern California similar to the wind hazard in Southern California leading to multiple wildfires), and 161 (noting The Utility Reform Network statement that “the fire risk associated with overhead power-line facilities is generally much lower in Northern California”).

⁶⁵ *Id.* at 174.

⁶⁶ Advice Letter 4167-E letter from Brian K. Cherry, Vice President, Regulation and Rates, PG&E, Dec. 21, 2012, at 2, https://www.pge.com/notes/rates/tariffs/tm2/pdf/ELEC_4167-E.pdf.

probability of observing wind speeds at the magnitude required during a red flag warning in the analysis is 0.06% in any single year.”⁶⁷

Finally, Commission Decision 12-01-032 held that any investor-owned utility that wanted to include proactive de-energization in its fire-prevention plan had to file an application for authority to do so with the Commission:

Any investor-owned electric utility that intends to shut off power as part of its fire-prevention plan must file an application for authority to do so. The application shall demonstrate with a cost-benefit analysis developed in accordance with the guidance provided by Decision 09-09-030 that the benefits of shutting off power in terms of a net reduction in fires outweigh the substantial costs, burdens, and risks that shutting off power would impose on customers and communities affected by the shut off. The application must also identify proposed mitigation measures to reduce or eliminate the inevitable adverse impacts caused by shutting off power, particularly the adverse impacts on people with disabilities, providers of essential services, and schools.⁶⁸

The Commission made clear that “[a]n electric IOU may not shut off power as part of its fire-prevention plan until the Commission has granted authority to do so.”⁶⁹

From January 2013 until the October 2017 North Bay Fires, PG&E did not develop a proactive de-energization plan, did not include proactive de-energization in its fire-prevention plans, and did not apply to the Commission for approval of a proactive de-energization plan. PG&E understood that there were significant public safety risks associated with proactive de-energization that could outweigh the benefit of the potential reduction in

⁶⁷ See, e.g., PG&E Fire Prevention Plan, dated October 22, 2014, at 11, which PG&E is producing at PGE-2017Wildfires-OII-0000005682-696. As discussed in Section II above and Section III.G below, PG&E conducted additional risk analyses not mandated by the CPUC throughout this time period and implemented additional fire mitigation measures in local areas with elevated fire risk based on those analyses.

⁶⁸ CPUC Decision 12-01-032 at 175-76.

⁶⁹ *Id.* at 52.

wildfire risk. At that time, PG&E, like the Commission and intervening parties who submitted comments in the Commission’s Fire Safety OIR proceedings, understood that Northern California had a lower wildfire risk than Southern California and no historical record of wind-driven, catastrophic power line-caused wildfires that would outweigh the risks associated with proactive de-energization.

While PG&E understood the threat of wind-driven, catastrophic wildfires in its territory was comparatively low, it understood the risks associated with de-energization—discussed in detail in Commission Decision 09-09-030⁷⁰—were potentially significant. De-energization impacts first responders, critical medical care, and the provision of water, sewer, and other essential services, including street lights and signals and communications systems. A power shutoff also creates additional risks for vulnerable individuals, including persons with disabilities and medical conditions. For example, persons who rely on personal medical devices such as powered breathing machines are particularly impacted. Furthermore, during a power shutoff, individuals lose the ability to contact emergency services, receive emergency warnings or otherwise access critical news and safety information and may even become trapped if they are not able to manually operate electric garage door openers. First responders are also impacted—a lack of water may impede the ability of fire departments to fight fires. Finally, a lack of electric power introduces the possibility of fire ignitions from alternative energy sources that residents will use for light, heat, and cooking, including candles, generators, camp stoves, and barbecues.

⁷⁰ The Commission rightly continues to note the serious risks associated with proactive de-energization. As recently as December 2018, the Commission reiterated the risks of proactive de-energization when it opened a new rulemaking proceeding to conduct a comprehensive review of proactive de-energization programs, noting that “de-energization can leave communities and essential facilities without power, which brings its own risks and hardships, particularly for vulnerable communities.” PSPS OIR Decision at 2.

Simply put, prior to the October 2017 North Bay Fires, PG&E had not determined that the wildfire risk in its territory met the high threshold warranting a de-energization plan, especially in view of the countervailing risks associated with de-energization.

B. Recognition of a “New Normal” Following the North Bay Fires

PG&E’s calculus for determining whether a de-energization program was a necessary additional wildfire mitigation measure in Northern California shifted as a result of the October 2017 North Bay Fires. The wildfires that began on the evening of October 8, 2017, were widely recognized as unprecedented, resulting from a confluence of abnormal weather events caused by climate change. As the California Office of Emergency Services (“**CalOES**”) stated, “[w]hile California has long been recognized as one of the most fire-prone natural landscapes in the world, the 2017 and 2018 wildfire years saw unprecedented wildfires, which eclipsed fire events from previous years. . . . All other 2017 wildfire events were overshadowed by two fire events of catastrophic size and destruction; the Northern California Wildfire Complex in October 2017 and the Thomas Fire in December 2017; both of which were driven by extreme weather conditions coupled with large volumes of dry vegetation, affected by drought, in wildland-urban interface areas.”⁷¹ A study authored by scientists from the National Oceanic Atmospheric Agency and the National Weather Service Storm Prediction Center agreed, finding that the October 2017 fires “featured key fire-weather metrics that were unprecedented in the observational record that followed a sequence of climatic conditions that enhanced fine fuel abundance and fuel availability.”⁷² According to the study, this confluence of abnormal weather

⁷¹ State of California Hazard Mitigation Plan, Sept. 2018, at 508, https://www.caloes.ca.gov/HazardMitigationSite/Documents/002-2018%20SHMP_FINAL_ENTIRE%20PLAN.pdf (“**CalOES Hazard Mitigation Plan**”).

⁷² Nicholas J. Nauslar, John T. Abatzoglou & Patrick T. Marsh, MDPI, “*The 2017 North Bay and Southern California Fires: A Case Study*” (June 9, 2018), at 1.

events, including an exceptionally wet winter, preceded by a severe four-year drought and the delayed onset of autumn precipitation, meant that the conditions in October 2017 were uniquely preconditioned for intense and quickly moving wildfires. The Commission acknowledged that “California is experiencing an increase in wildfire events due to a number of factors, including an extended period of drought, upwards of 10 years, increased fuel for fires, and unprecedented conditions that are leading to extreme weather events.”⁷³

Key stakeholders in California recognized that these changed conditions, and the resulting dramatically increased wildfire risk, represented a “new normal.” According to CAL FIRE, “California now often experiences a year-round fire season, with an increase in both the number and the intensity of large, damaging wildfires over the last decade. This is the ‘new normal’ of the State’s wildfire environment.”⁷⁴ Governor Brown echoed these comments, stating that a busy fire season is “the new normal that [California] will have to face,” and he expected that over the next decade, California would see “more destructive fire.”⁷⁵ CalOES likewise identified increased wildfire frequency and severity in Northern California as recent phenomena attributable to climate change:

It should be noted that while most counties have experienced a state or federally declared fire disaster (see Map 8.D), the majority of those declarations have occurred in Southern California, due to a large population base located in areas that commonly have volatile shrublands, steep slopes, and annually occurring Santa Ana winds. However, there are growing concerns regarding increased wildfire frequency and severity in Northern California shown in climate change models. These concerns were substantiated in 2017

⁷³ PSPS OIR Decision at 1.

⁷⁴ CAL FIRE Press Release, “Board of Forestry and Fire Protection and CAL FIRE Working to Increase Pace and Scale of Wildfire Prevention Activities”, CAL FIRE (Dec. 19, 2017), https://www.fire.ca.gov/media/5191/2017_bof_calfire_vtppeir_newsrelease.pdf.

⁷⁵ Mireya Villarreal, *Devastating Wildfires a “New Normal” for California, Gov. Jerry Brown Says*, CBS NEWS (Aug. 1, 2018, 6:38 P.M.), <https://www.cbsnews.com/news/devastating-wildfires-a-new-normal-for-california-gov-brown-says/>.

and 2018 with the catastrophically destructive nature of three record breaking fires, the October 2017 Northern California fires in Sonoma, Napa, and Solano Counties; the 2018 Carr Fire in Shasta County; and the 2018 Mendocino Complex in Mendocino, Lake, Glenn, and Colusa Counties.⁷⁶

Responding to the “stark new reality of wildfire events in California” heralded by the 2017 California wildfire season,⁷⁷ the Commission updated its de-energization guidance in July 2018. The Commission adopted Resolution ESRB-8 (“**ESRB-8**”), finding that “[r]ecent California experience with wildfires demands that we enhance existing de-energization policy and procedures” by strengthening its de-energization guidelines and extending the guidelines, which had previously applied only to SDG&E, to all electric IOUs.⁷⁸ ESRB-8 also modified the standard for when a utility could proactively de-energize to add the following underlined phrase: “[The IOU] must reasonably believe that there is an imminent and significant risk that strong winds will topple its power lines onto tinder dry vegetation or will cause major vegetation-related impacts on its facilities during periods of extreme fire hazard.”⁷⁹ While the prior Commission standard authorized de-energization only where a utility’s electric facilities might fail due to strong winds exceeding design limitations, the modified standard also authorizes de-energization where strong winds create an imminent and significant risk that trees or other vegetation will fall into or otherwise impact a utility’s electric facilities, as was experienced during the North Bay Fires.⁸⁰

⁷⁶ CalOES Hazard Mitigation Plan at 518.

⁷⁷ PSPS OIR Decision at 5.

⁷⁸ Resolution Extending De-Energization Reasonableness, Notification, Mitigation and Reporting Requirements in Decision 12-04-024 to all Electric Investor Owned Utilities, July 12, 2018, at 5, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M217/K801/217801749.PDF> (“**ESRB-8**”).

⁷⁹ *Id.* at 4 (emphasis in original).

⁸⁰ PG&E respectfully submits that the events the Commission alleges caused the North Bay Fires were not events that were contemplated by the Commission’s proactive de-energization guidance as of October 2017. With limited exceptions, the allegations against PG&E with respect to the North Bay Fires concern

In December 2018, the Commission opened an Order Instituting Rulemaking “to examine its rules allowing electric utilities under the Commission’s jurisdiction to de-energize power lines in case of dangerous conditions that threaten life or property in California.”⁸¹ This PSPS OIR is intended to “examine how the Resolution ESRB-8 process is working,” “determine whether additional refinement is appropriate,” and “seek to enhance stakeholder involvement in examining [the Commission’s] de-energization requirements.”⁸²

C. PG&E 2018 Public Safety Power Shutoff Program⁸³

After the October 2017 North Bay Fires, PG&E’s calculus with respect to de-energization changed. PG&E first considered using proactive de-energization as a tool in December 2017 in anticipation of severe weather events forecast to begin on December 15, 2017. PG&E was prepared to assess the potential need for proactive de-energization if forecasted weather conditions worsened from the existing forecast, but forecasted conditions did not necessitate doing so. Beginning in January 2018, PG&E began developing a proactive de-energization plan—its PSPS program—to provide a framework for proactively de-energizing distribution lines and 60 kV and 70 kV transmission lines that crossed Tier 3 HFTD areas. PG&E first implemented PSPS as an operable program in advance of the 2018 fire season.

vegetation breaking in high winds and falling onto PG&E lines, not that PG&E’s electric facilities (poles, lines, or other equipment) failed due to winds exceeding the electric facilities’ design limitations. In fact, the Commission does not allege that any of the fourteen fires it determined were caused by PG&E were caused by the failure of PG&E electric facilities due to high winds exceeding design limitations. The Commission’s prior guidance authorized de-energization where winds were strong enough to exceed design limits and topple infrastructure rather than cause major vegetation-related impacts.

⁸¹ PSPS OIR Decision at 1.

⁸² *Id.* at 7.

⁸³ In this Section, PG&E is responding to Section II.D of Attachment B as to Topic C, Proactive De-energization and Section III.C.1 of Attachment B for the time period December 2017 to December 2018, as well as Section III.C.5 of Attachment B.

PG&E's PSPS program was designed to balance the competing public health, safety, and welfare risks presented by wildfires and similar risks presented by the de-energization of power lines.⁸⁴

During the development of its PSPS program in early 2018, PG&E participated in benchmarking with SDG&E and Southern California Edison ("SCE"). PG&E, SDG&E, and SCE shared ideas and collaborated as they developed their respective prospective de-energization programs, which gave PG&E insight into SDG&E and SCE's de-energization programs. Among other items, the utilities shared their approaches to decision-making, development of technology, restoration of power after de-energization, and dissemination of information during prospective de-energization events. In addition, PG&E read the reports filed with the Commission by SDG&E in 2017 and 2018 about SDG&E's de-energization events, and the reports filed by SCE in 2018 and 2019 about SCE's de-energization events as it developed and later expanded its PSPS program.

PG&E's PSPS program was primarily modeled on SDG&E's proactive de-energization program after performing extensive benchmarking with SDG&E in a variety of areas, including meteorology, operational processes, emergency response, restoration, communications, and customer support. In particular, PG&E utilized SDG&E's methodology for determining the circumstances under which it would initiate a PSPS, its early stakeholder communication strategy (including with customers), and its methods for determining readiness for post-event patrols and verifying the safety of overhead facilities before re-energization.

⁸⁴ A detailed description of the development of PG&E's PSPS program in 2018 and planned expansion and enhancements for 2019 is provided in PG&E's Amended Wildfire Safety Plan dated February 14, 2019, <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M266/K647/266647757.PDF>. The Amended Wildfire Safety Plan was approved by the CPUC on May 30, 2019. *See* Decision on Pacific Gas and Electric Company's 2019 Wildfire Safety Plan pursuant to Senate Bill 901, May 30, 2019, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M298/K246/298246537.PDF>.

Consistent with SDG&E's de-energization plan, before making the decision to de-energize, PG&E considers numerous real-time factors, including red flag warnings, wind, weather and fuel conditions, ignition spread modeling, and on-the-ground observations from field personnel. PG&E's Meteorology team also worked with fire experts from SDG&E, as well as San Jose State University's ("SJSU") Fire Weather Research Lab, to develop an enhanced version of its FPI to function as a real-time tool leveraging weather station observations. PG&E also developed (based on SDG&E's practices) a comprehensive notification system designed to provide early and continuous communications with customers, local communities, first responders, health care facilities and other critical service providers, including in-person notification as needed for Medical Baseline customers.

While employing SDG&E's best practices, PG&E developed its PSPS program to fit the attributes of PG&E's own service territory. Specifically, PG&E adapted SDG&E's method to identify decision factors to apply to the unique conditions of PG&E's service area, which differs significantly from SDG&E's territory in size, terrain, weather, and population density.

On October 14, 2018, PG&E initiated its first-of-its-kind PSPS event, ultimately making the decision to temporarily turn off power for public safety to approximately 60,000 customers in seven counties. The event provided opportunities for PG&E to receive feedback from the Commission, CalOES, CAL FIRE, and other stakeholders. Based on feedback from that event, PG&E focused its efforts on notifying customers of possible upcoming de-energization between 08:00 and 21:00 whenever possible; reducing multiple notifications (especially for multi-premise commercial customers); providing county offices of emergency services, first responders, and state agencies with more detailed information and detailed maps of

affected customers and communities; notifying communities of estimated time of restoration more frequently during the patrol and restore process after the weather has subsided; and improving processes to reduce restoration times.

PG&E is producing contemporaneous documentation reflecting the development of its PSPS program beginning in early 2018 that are responsive to Section III.C.1 of Attachment B at PGE-2017Wildfires-OII-0000005640 (PSPS process flow chart prepared in January 2018); PGE-2017Wildfires-OII-0000005366 (Updated PSPS process flow chart prepared in February 2018); PGE-2017Wildfires-OII-0000005361-362 (presentation prepared for March 13, 2018 Senior Team Meeting); PGE-2017Wildfires-OII-0000005319-336 (presentation prepared for May 18, 2018 Senior Team Meeting); PGE-2017Wildfires-OII-0000005340-360 (presentation prepared for June 21, 2018 Senior Team Meeting); PGE-2017Wildfires-OII-0000005363-365 and PGE-2017Wildfires-OII-0000005317-318 (materials prepared for July 26, 2018 Senior Team Meeting); and PGE-2017Wildfires-OII-0000005367 (presentation prepared for September 13, 2018 Senior Team Meeting).

PG&E is also producing its 2018 PSPS program policies, procedures, utility bulletins, and internal guidance documents that are responsive to Section III.C.6 of Attachment B at PGE-2017Wildfires-OII-0000000204-273, PGE-2017Wildfires-OII-0000000288-291, PGE-2017Wildfires-OII-0000005313-316, PGE-2017Wildfires-OII-0000005368-506.

D. PG&E's Expansion of PSPS for 2019 and Plans for the Next 12 Months⁸⁵

PG&E has expanded its PSPS program for the 2019 wildfire season to include all electric lines—both distribution and transmission—that traverse Tier 2 or Tier 3 HFTD areas.

⁸⁵ In this Section, PG&E is responding to Section II.D of Attachment B as to Topic C, Proactive De-energization and Section III.C.1 of Attachment B for the time period January 2019 to May 31, 2019, as well as to Section II.E of Attachment B as to Topic C, Proactive De-energization.

This expansion of the PSPS Program increases the targeted distribution lines from approximately 7,000 circuit miles to approximately 25,200 circuit miles and the targeted transmission lines from approximately 370 circuit miles to approximately 5,500 circuit miles. While customers in Tier 2 or Tier 3 areas are more likely to be affected by a PSPS event, any of PG&E's more than five million electric customers could have their power shut off if their community relies on a line that passes through a high fire-threat area. Given the significantly increased scope of its PSPS program, PG&E has performed extensive outreach to customers to provide them with information regarding PSPS events and to help prepare them for those events. PG&E is producing its 2019 PSPS program policies, procedures, utility bulletins, and internal PSPS guidance documents that are responsive to Section III.C.6 of Attachment B at PGE-2017Wildfires-OII-0000000193-203, PGE-2017Wildfires-OII-0000000274-287, and PGE-2017Wildfires-OII-00000005507-639.

PG&E has made and will continue to make further changes over the next 12 months to continually improve and support its expanded PSPS program and help keep its customers and the communities it serves safe. For example:

PG&E is improving the processes to identify the applicable conditions for PSPS and when to execute PSPS events. To do so, it is swiftly increasing its situational awareness—its knowledge of local weather and environmental conditions—to obtain real time information on a more granular level. This includes installing approximately: 200 weather stations and 30 cameras by June 30, 2019; 400 new weather stations in total by September 1, 2019; 71 new cameras in total by December 31, 2019; and 1,300 weather stations within five years. PG&E is also enhancing its meteorological models to incorporate data from the new weather stations.

PG&E's Meteorology team is also actively improving existing meteorological models. PG&E is upgrading and automating its Storm Outage Prediction Project ("SOPP") model to allow for less reliance on the forecaster and greater ability to provide more granular and frequent outage forecasts. PG&E also is leveraging a newly completed 30-year model reanalysis (climatology) across the entire PG&E service territory along with historical fire occurrence to calibrate and scale its FPI and outage models. Similarly, PG&E plans to test and improve its POMMS modeling system using High Performance Compute capabilities to produce more granular and accurate forecasts. PG&E is further improving situational awareness by developing new systems and tools. For example, PG&E just launched a next-generation wildfire detection and alert system that uses satellite imagery to detect wildfires, and it is working with relevant external agencies to send them alerts. Additionally, PG&E plans to deploy advanced fire spread modeling technology that produces hourly fire spread risk scores for circuits in HFTD areas. To do so, PG&E is working to establish a methodology to combine the fire spread risk score with existing systems for tracking and scaling the overall fire danger and the potential for ignition, specific to FPI and the SOPP model.

PG&E is also developing a risk-based process, or Operability Assessments ("OA"), to assess the wildfire risk of individual transmission lines and structures. Through these OA, initially applied to transmission lines, PG&E will apply a risk-informed methodology to evaluate the potential risks of the line and impacts from de-energization. This risk-informed methodology will guide PSPS decisions, allowing PG&E to de-energize specific, targeted transmission lines to reduce wildfire risk and avoid indiscriminate de-energization of transmission lines.

PG&E is also developing ways to alleviate the risks and impacts of PSPS, such as through Resilience Zones and Community Resource Centers. A Resilience Zone is a designated area where PG&E can safely provide electricity to central community resources by rapidly isolating it from the wider grid and re-energizing it using temporary mobile generation during a public safety outage, allowing for important emergency and community services such as first responders, grocery stores, and gas stations to remain energized while the surrounding areas may be de-energized for safety. PG&E is working together with the local community in Angwin, California, including Pacific Union College, to establish its first Resilience Zone that would provide electricity to certain community resources and help reduce the impact of a potential PSPS event. Community Resource Centers are designed to provide customers and residents a safe, energized location to meet basic power needs (*i.e.*, charging cell phones and laptops and Wi-Fi access where possible), and provide up-to-date information in neighborhoods and communities when a PSPS event occurs. PG&E opened two Community Resource Centers, one in Grass Valley and one in Oroville, during its June 2019 PSPS event.

PG&E is also reducing the impact of PSPS events through system sectionalizing. PG&E is upgrading devices with SCADA capability in targeted portions of the HFTD areas to help minimize the impact of PSPS events on customers in low-risk areas adjacent to the HFTD areas. These upgrades include adding or replacing existing manually operated fuses and switches at strategic locations with new SCADA-enabled reclosing devices. By isolating the lines closer to the border of the HFTD, fewer customers will be impacted and fewer lines will be de-energized. These improvements will also expedite restoration by reducing the amount of lines requiring a patrol.

Finally, PG&E is improving the availability of maps of areas potentially and actually impacted by a PSPS event to public safety partners and the general public.

E. Statutory and Regulatory Requirements⁸⁶

PG&E's PSPS program is subject to regulation by the Commission with respect to its distribution and lower-voltage transmission facilities and by the Federal Energy Regulatory Commission ("FERC"), North American Electric Reliability Corporation ("NERC"), and the Western Electricity Coordinating Council ("WECC") with respect to higher-voltage (greater than 100kV) transmission facilities that are part of the "bulk-power system"—the interconnected electric energy transmission network. PG&E must also coordinate de-energization of transmission lines with CAISO, which manages California's wholesale transmission grid.

i. State Statutory and Regulatory Requirements

As discussed above, the Commission has held that investor-owned utilities have authority to shut off power to protect public safety under § 451 and § 399.2(a) of the Public Utilities Code. The Commission set forth the scope of that authority, as well as notice, mitigation, communication, coordination, and reporting requirements in its ESRB-8. For example, ESRB-8 requires utilities to meet with the local communities which may be impacted by a future de-energization event, plan for and provide feasible and appropriate customer notifications prior to a de-energization event, and notify the SED before lines are de-energized and once service is restored.⁸⁷ Pursuant to a Joint Letter issued by CalOES, CAL FIRE and the Commission to PG&E, SDG&E, and SCE on October 26, 2018 ("**State Joint Letter**"), PG&E also is required to provide advanced notification and supporting data to these agencies at several

⁸⁶ In this Section, PG&E is responding to Section II.G of Attachment B as to Topic C, Proactive De-energization.

⁸⁷ ESRB-8 at 5-7.

distinct stages of a PSPS event.⁸⁸ Finally, in June of this year, the Commission issued expanded notice, communication and coordination requirements for PSPS events as part of its PSPS OIR proceeding instituted in December 2018.⁸⁹

PG&E has developed a program to align with ESRB-8 and the State Joint Letter, and will update that program as necessary to meet or exceed any additional requirements coming out of the PSPS OIR proceeding. PG&E's PSPS policy and procedures documents set forth the scope, roles, decision factors, and process overview for the PSPS program, including notice, mitigation, communication, coordination and reporting policies consistent with ESRB-8 and the State Joint Letter. In addition, an overview of PG&E's current Public Safety Power Shutoff Policies and Procedures document, dated May 2019, is available to the public on PG&E's website at https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/Public-Safety-Power-Shutoff-Policies-and-Procedures.pdf. PG&E is in the process of reviewing and updating its PSPS policies and procedures to meet or exceed the Commission's expanded guidance issued on June 4, 2019.

ii. Federal Statutory and Regulatory Requirements

PG&E's 2019 PSPS program includes transmission lines greater than 100kV that pass through Tier 2 or Tier 3 HFTD areas, which are part of the bulk-power system subject to federal regulation by FERC, NERC and WECC. In order to facilitate compliance with federal reliability and operational requirements (*e.g.*, North American Electric Reliability Corporation Reliability Standards, California Independent System Operator Corporation Tariff requirements)

⁸⁸ Letter from CPUC, CalOES, CAL FIRE to PG&E, Oct. 26, 2018, https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/10.26.18%20-%20Joint%20Letter%20to%20Utilities%20re%20Public%20Safety%20Power%20Shut-off.pdf.

⁸⁹ Decision Adopting De-Energization (Public Safety Power Shut-Off) Guidelines (Phase 1 Guidelines), June 4, 2019, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M296/K598/296598822.PDF>.

and limit reliability risk to the wide-area grid, PG&E has developed OA to assess the wildfire risk of individual transmission lines and structures. Through these OA, PG&E is applying a risk-informed methodology to evaluate the potential risks of the line and impacts from de-energization. This risk-informed methodology will guide PSPS decisions, allowing PG&E to de-energize specific, targeted transmission lines to reduce wildfire risk while avoiding impacts to the larger grid where possible.

PG&E has engaged with both FERC and WECC to ensure that they are aware of PG&E's PSPS plan and approach to the possible de-energization of high-voltage transmission lines. In addition, PG&E has been working with CAISO since March 2019 to develop a coordination process for the de-energization of transmission lines as CAISO and PG&E have shared responsibility for transmission lines. That work has included determining operational limitations, defining a process for PSPS implementation, developing stress test exercises, and creating a PG&E-CAISO playbook for potential transmission PSPS events during the 2019 wildfire season.

F. Employee At-Risk Pay Metrics⁹⁰

No employee at-risk pay metrics in any PG&E incentive plan relate to proactive de-energization of power lines during times of high fire danger.

⁹⁰ In this Section, PG&E is responding to Section II.F of Attachment B as to Topic C, Proactive De-energization.

V. RECORDKEEPING⁹¹

PG&E has policies, procedures, and practices that govern how work records and inspection records are created, which include measures to help validate the accuracy and timeliness of work orders and inspection records.

PG&E's Electric Distribution Preventative Maintenance ("**EDPM**") Manual and Electric Transmission Preventative Maintenance ("**ETPM**") Manual set out the policies and procedures for creating accurate inspection records, Distribution Electric Corrective Notifications ("**EC Notifications**"), and Transmission Line Corrective Notifications ("**LC Notifications**"). PG&E understands "work orders" in Attachment B to refer to EC and LC Notifications. There are a number of PG&E employees who are responsible for maintaining and reviewing these records, including the Compliance Inspectors, Troublemakers and Contractors performing patrols and inspections; the Compliance Clerks that review inspection and patrol documentation; the Compliance Supervisors who audit the work of their Compliance Inspectors; the Centralized Gatekeeping team that reviews new EC Notifications; the Centralized Inspection Review Team that reviews new LC Notifications; and the Electric Quality Management team that audits documentation relating to PG&E's electric facilities. PG&E does not have policies and procedures specific to late work orders, incorrect work orders, or missing inspection records.

PG&E is producing the ETPM Manual and EDPM Manual at PGE-2017Wildfires-OII-0000001151-244 (2018 ETPM Manual) and PGE-2017Wildfires-OII-0000000562-861 (2016 EDPM Manual).⁹²

⁹¹ Because PG&E did not take actions regarding recordkeeping directly in response to the 2014 State of Emergency proclamation, the February 8, 2014 letter from SED or Resolution ESRB-4, it is not providing a response to Section II.B of Attachment B as to Topic D, Recordkeeping.

⁹² PG&E is also producing prior versions of the ETPM Manual and EDPM Manual at PGE-2017Wildfires-OII-0000000292-345 (2011 EDPM Manual); PGE-2017Wildfires-OII-0000000346-561 (2015 EDPM Manual); PGE-2017Wildfires-OII-0000005784-5847 (2011 ETPM Manual); PGE-

A. Distribution⁹³

i. EC Notifications

EC Notifications are created to document and address abnormal conditions or non-compliances identified during a patrol, inspection, or enhanced inspection. When the Notification is first created, it is known as an S9 Notification. Once it is approved by the Centralized Gatekeeper (“**Gatekeeper**”), as explained below, it is converted to an EC Notification for which corrective work can be performed.

Each EC Notification is assigned a priority code, “A,” “B,” “E,” or “F.” The below table sets out the baseline completion timelines assigned to these priority codes.⁹⁴ The timelines are subject to modification based on the exemption process or the facility’s location in an HFTD area, as described in more detail below.

2017Wildfires-OII-0000001245-1311 (2014 ETPM Manual); PGE-2017Wildfires-OII-0000001078-150 (2015 ETPM Manual); PGE-2017Wildfires-OII-0000001312-1396 (2016 ETPM Manual).

⁹³ In this Section, PG&E is responding to Section II.A, C, D, E, and G of Attachment B as to Topic D, Recordkeeping.

⁹⁴ See EDPM Manual, Ch. Assessments, Notifications and Forms, Section 5: Degree of Importance Chart.

| Degree of Importance | Probability of Facility Failure | Impact of Failure and/or Exposure |
|---|---|---|
| Priority A Emergency | <ul style="list-style-type: none"> • A structure has already failed • Equipment has significant damage • The condition results in significant exposure to the general public | <ul style="list-style-type: none"> • Failure or exposure may lead to serious injuries • Failure has caused outages to customers • Requires immediate response or stand-by |
| Priority B Urgent 0-3 Months | <ul style="list-style-type: none"> • A structure has already failed • Equipment has significant damage • The condition may result in significant exposure to the general public • The condition can be "made safe", but requires permanent repair within 3 months | <ul style="list-style-type: none"> • Failure or exposure may lead to serious injuries, significant outages • Failure or exposure will result in an imminent reliability concern • Failure or exposure is a safety issue with significant impact • Does NOT require immediate response or stand-by |
| Priority E 3-12 Months | <ul style="list-style-type: none"> • A structure has already failed, but damage is such that repair is not required in the next 3 months • High likelihood that structure or equipment will fail in the next 12 months • The condition does not result in significant exposure to the general public | <ul style="list-style-type: none"> • Failure or exposure will not lead to serious injuries • Failure will result in an outage(s) • Failure or exposure is a safety issue with impact to PG&E operations and customers |
| Low No EC Required | <ul style="list-style-type: none"> • The condition is not structural • There is a low likelihood of failure • The condition does not have a significant impact to structural integrity • The condition is not likely to fail within 12 months | <ul style="list-style-type: none"> • There is little potential for injury or impact on reliability • Work procedures mitigate safety concerns • Failure or exposure does not present a significant impact to PG&E operations and customers |
| Priority F Regulatory (As identified on the back of the EC Work Form) | <ul style="list-style-type: none"> • N/A • Regulatory Facility/Damage/Action (FDAs) must be identified | <ul style="list-style-type: none"> • N/A • Regulatory Facility/Damage/Action (FDAs) must be identified |

PG&E's policies require "A" priority EC Notifications to be addressed immediately. PG&E's policies require "B" and "E" priority EC Notifications to be completed within three and 12 months, respectively, except for "E" priority Notifications for facilities that are located in Tier 3 of the HFTD Map, which are required to be completed within six months. PG&E's policies require "F" priority EC Notifications to be completed within three years for underground facilities, and within five years for overhead facilities.

PG&E aims to complete corrective work on its distribution lines within the baseline time frame outlined above. PG&E revises or extends completion dates via the "Past

Due Exemption Process for EC Maintenance Program.”⁹⁵ Under PG&E’s policies, past due Notifications are not to be approved for a due date extension if it is unsafe to defer the work. Factors giving rise to extensions of completion dates include, but are not limited to, the following scenarios: inability to obtain access, clearances or permits, and interference by weather and other environmental restrictions.

To revise the due date of an EC Notification from its original due date, the Past Due Exemption Process for EC Maintenance Program requires verification that field conditions permit an extension and that the extension is tracked and maintained in SAP. The Past Due Exemption Process for EC Maintenance Program generally requires:

- A field visit by a PG&E qualified electrical worker to assess the current field condition identified and confirm it is safe to defer completion of the work to a later date;
- Photo documentation of the current condition; and
- Approval from the following PG&E employees: Local Distribution Supervisor, Compliance Supervisor, Division Superintendent; Region Director; and Pole or Non-Pole Program Manager.

Where the condition documented in the EC Notification is determined to be low potential risk (based on PG&E employees’ local knowledge and an assessment of the facility, area, demographics, and other factors), the duration of the extension can be determined without conducting a field visit, and instead by using available documentation and knowledge of local conditions. This review and determination are the responsibility of a local qualified supervisor or a designee (such as a Gatekeeper). Any Notifications of broken, damaged, or deteriorated

⁹⁵ A Notification’s due date may be extended in compliance with GO 95, Rule 18(A)(2)(b): “Correction times may be extended under reasonable circumstances, such as: Third party refusal, customer issue, no access, permits required, and system emergencies (e.g., fires, severe weather conditions).”

facilities are automatically determined to be of high potential risk and cannot be extended without a field visit.

In determining the revised due date for exempted EC Notifications, PG&E's policies require consideration of the field conditions and any associated safety and reliability risks. The revised due date must not be later than the field condition allows. The Notification's completion date ("**Required End Date**") is tracked and maintained on SAP.

ii. Overview of Distribution Record Creation

PG&E's work on its distribution lines is governed by the EDPM Manual, which sets out the procedures for patrol and inspection work, maintenance work, and the documentation relating to that work. Distribution EC Notifications typically are generated as a result of either a patrol or an inspection of a distribution facility.

(1) Routine Patrols and Inspections

During routine patrols, PG&E's policies call for a visual examination of distribution overhead facilities to identify any obvious structural problems or hazards without using measuring devices or tools. Unlike patrols, PG&E's policies for inspections require a visual examination of all individual components, structures, and equipment with the aid of measuring devices and tools.

Routine patrols and inspections are conducted in compliance with the Commission's General Order 165 ("**GO 165**"). PG&E's GO 165 Program is primarily focused on the identification, assessment, prioritization, and documentation of compelling abnormal conditions, regulatory conditions, and third party caused infractions that negatively impact the safety or reliability of the facilities. Patrols and inspections of PG&E's distribution facilities seek to identify such conditions.

PG&E's policies require PG&E Compliance Inspectors to perform routine patrols annually in urban areas, and every other year in rural areas. Inspections of overhead facilities are required every five years, and inspections of underground facilities every three years. By patrol or inspection, each distribution facility is inspected per the Commission's GO 165, 12+3 requirement.

PG&E Compliance Inspectors use a map package (described below) to document and record in-field assessments of electric distribution facilities, whether that assessment is a patrol or inspection; this documentation is referred to as the map package. The map package consists of the following:

- Patrol/Inspection Map, used to graphically track progress on the patrols of all electric facilities;
- Electric Maintenance Patrol/Inspection Daily Log, which provides a means to document location information and links the patrol map by the specific patrol date to the system-generated EC Notification (or any other electronic notification such as Third Party, Idle Facility, etc.), thus enabling access to that specific record in the SAP database; and
- Report of Pending EC Notifications, associated with the specific Patrol/Inspection Map.

Completed, dated, and signed map packages are submitted for review, along with any applicable forms.

In 2013, all of the components of the map package were submitted in hard copy format. As of May 2017, Compliance Inspectors have transitioned to a mobile application called InspectApp to electronically generate S9 Notifications (the staging notifications that are later converted to EC Notifications); the patrol/inspection maps and daily logs continue to be completed in hard copy format. InspectApp is designed to reduce errors in the creation of S9 Notifications through a number of controls, including auto-populating information and requiring that certain fields be filled out before the S9 Notification can be submitted.

In the future, PG&E plans to enhance its documentation by moving to a full mobile device-based solution for all three types of documents (Map, Log, and Pending Notifications) created during the course of patrols and inspections.

(2) Enhanced Inspections

PG&E is performing additional inspections of its distribution electric facilities, known as enhanced inspections, in accordance with PG&E's WSP. Inspectors performing these enhanced inspections are required to follow the procedures set forth in the EDPM Manual, as outlined above for routine patrols and inspections, in addition to certain supplemental procedures. For example, inspectors performing enhanced inspections are required to use methods developed as a result of PG&E's Failure Modes and Effects Analysis, which analyzed single points of failure of electric system components that could lead to fire ignition. Enhanced inspections are subject to the same documentation as routine inspections and patrols, as outlined above. Additionally, inspectors performing enhanced inspections are required to complete Pronto Forms to document the facilities reviewed during the course of their inspection.

iii. Compliance Clerk

Compliance Clerks are responsible for reviewing hard copy map packages generated in connection with routine patrols and inspections. From 2013 to May 2017, Compliance Clerks created all S9 Notifications in the SAP database based on the map package records. Now that Compliance Inspectors create S9 Notifications from their mobile devices, Compliance Clerks only review the patrol and inspection maps and the daily logs.

Compliance Clerks record the completion of map packages in SAP and create any necessary Notifications in SAP based on the documentation created by the patrolling or inspecting Compliance Inspectors.

iv. Compliance Supervisor

Compliance Supervisors perform various reviews of patrol and inspection records. These tasks cover three broad categories.

First, Compliance Supervisors perform monthly field work verifications of inspections aimed at verifying that all conditions and map corrections have been properly identified and documented. The Compliance Supervisors are required to verify the field work performed on at least four overhead facilities that were inspected in the previous month.

Second, Compliance Supervisors are responsible for the final review and confirmation of the map package documents. They are also responsible for reviewing newly created S9 Notifications by the Compliance Inspectors or Clerks. The review entails, for instance, confirming that all locations identified on the inspection or patrol map have a corresponding entry on the Daily Log and appropriate form, checking that the location numbers on the map correspond with entries in the S9 Notification, and looking for any missing information. Compliance Supervisors document their review by initialing and dating the map package documents after their review.

Third, Compliance Supervisors are responsible for reviewing pending S9 Notifications that were updated by the Gatekeeper, described in more detail below. They confirm and sign off on any Gatekeeper changes and are responsible for confirming that the updated EC Notification includes all the required information, such as photos of the inspected facilities, where necessary.

v. Centralized Gatekeeper

The distribution organization created a Centralized Gatekeeper team in 2013 to review pending Notifications for completeness and consistency. Gatekeepers are responsible for reviewing “B,” “E,” and “F” priority S9 Notifications that are pending in SAP for completeness

and to review the Compliance Inspector's conclusions.⁹⁶ Gatekeepers perform their work using the Gatekeeper Screen in SAP. The Gatekeeper Screen has settings that will automatically populate certain cells or prevent an erroneous entry, such as assigning an expense work code to capital work.

If the Gatekeeper determines that an S9 Notification is incomplete, the Gatekeeper returns the S9 Notification back to the relevant Compliance Inspector and Compliance Supervisor with additional questions, notice of incomplete information, or proposed changes for sign off. Notifications may be incomplete for several reasons, including missing photos, insufficient information or duplicates of existing Notifications. Gatekeepers also are responsible for validating that the assigned priority is consistent with the EDPM Manual and can change the priority assigned, as needed, before entering it as an EC Notification. A change in priority does not require Compliance Supervisor approval.

Gatekeepers may cancel S9 Notifications if they do not meet the appropriate criteria. If a Gatekeeper cancels an S9 Notification, the Gatekeeper must specify a cancellation reason code and explain the cancellation reason further in a comment field. Available cancellation codes are: "Invalid EC," "duplicate EC," or "belongs to another program." PG&E tracks these cancellation codes in SAP.

If the S9 Notification is complete and meets the appropriate criteria, the Gatekeeper validates the S9 Notification, converting it to an EC Notification so that corrective work process may begin.

⁹⁶ Gatekeepers currently do not review "A" priority Notifications because these notifications are for emergency conditions and require immediate repair.

B. Transmission⁹⁷

i. Line Corrective Notifications

LC Notifications are created to document and address any abnormal conditions or non-compliances identified during a patrol or inspection. The creation of LC Notifications typically is initiated by Troublemakers in the field during routine inspections and patrols through the PG&E Automatic Integration Mobile Application. When the Notification is first created, it is known as an S5 Notification. Once it is approved by the Transmission Supervisor or CIRT (as described below), it becomes an LC Notification for which corrective work can be performed.

Each LC Notification is assigned a priority code, “A,” “B,” “E,” or “F.”⁹⁸ The below table sets out the baseline completion timelines assigned to these codes. The completion timelines are subject to modification based on the exemption process or the facility’s location in an HFTD, as described in more detail below.

| Priority Code | Priority Description |
|---------------|--|
| A | The condition is urgent and requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. SAP due date will be 30 days to allow time for post-construction processes and notification close-out. |
| B | Corrective action is required within 3 months from the date the condition is identified. The condition must be reported to the transmission line supervisor as soon as practical. |
| E | Corrective action is required within 12 months from the date the condition is identified. |
| F | Corrective action is recommended within 24 months from the date the condition is identified, (due beyond 12 months, not to exceed 24 months). Requires Director approval. |

⁹⁷ In this Section, PG&E is responding to Section II.A, C, D, E, and G of Attachment B as to Topic D, Recordkeeping.

⁹⁸ ETPM Manual, Ch. 1: General Inspection and Patrol Procedures, Section 5.2: Assessing Conditions.

PG&E's policies require that priority "E" and "F" Notifications for facilities that are located in Tier 3 of the HFTD Map be assigned a maximum six-month duration, and facilities located in Tier 2 of the HFTD Map be assigned a maximum 12 month duration.

PG&E aims to complete corrective work on its transmission lines within the baseline time frame outlined above. PG&E may revise or extend completion dates via the "LC Past Due Exemption Process."⁹⁹ Past due LC Notifications that are not approved for due date extension are required to be completed as soon as practicable. Factors giving rise to extensions of due dates include, but are not limited to, the following scenarios: Inability to obtain clearances, materials, equipment, or access; environmental permitting restrictions; interference from weather; and subsequent testing or reevaluation of the identified condition.

To revise the due date of an LC Notification from its original due date, the LC Past Due Exemption Process requires verification that field conditions permit an extension. The ETPM Manual outlines the LC Past Due Exemption Process,¹⁰⁰ which requires:

- A field visit by a PG&E qualified electrical worker to assess the current field condition identified and confirm it is safe to defer completion of the work to a later date;
- Photo documentation of the current condition; and
- Approval from the following PG&E employees: Asset Strategist, Supervisor of Maintenance and Compliance, Superintendent, and Transmission Line Senior Director.

For low-risk Notifications, an exemption may be granted without a field visit if the following criteria are met:

⁹⁹ A Notification's due date may be extended in compliance with GO 95, Rule 18(A)(2)(b): "Correction times may be extended under reasonable circumstances, such as: Third party refusal, customer issue, no access, permits required, and system emergencies (e.g., fires, severe weather conditions)."

¹⁰⁰ ETPM Manual, Ch. 1: General Inspection and Patrol Procedures, Section 1.5.3: Notifications Extending Beyond Due Date.

- The condition meets the emergency criteria;
- The condition is not a “B” priority tag; and
- The revised end date will be within two months of the original due date.

In April 2019, PG&E implemented a new procedure clarifying and modifying the LC Past Due Exemption Process described in the ETPM Manual.¹⁰¹ The new procedure includes the following updates to the LC Past Due Exemption Process:

- The revised due date cannot be more than 60 days from the original due date. If the LC Notification cannot be closed out within 60 days of the original due date, it will require an additional field visit;
- One or more photos taken during the field visit are required; and
- Where the exemption is being requested due to accessibility issues, the documentation must include a detailed description of the access issues and a proposed accessibility plan.

PG&E’s policies require consideration of field conditions and any associated safety and reliability risks when determining whether the due date may be extended. If it is unsafe to defer completion of the Notification, PG&E policy requires that a plan be devised in order to complete the work within the prescribed time frame and is committed to pursuing other methods of completing repairs prior to the Required End Date. An LC Notification due date exemption is not to be requested until reasonable effort has been made to complete the Notification by its due date. LC Notifications not completed by their required due date (whether or not that due date was ever extended under the exemption process) will be reflected in the late tag data provided in *infra* Section V.D.ii.

PG&E is currently in the process of reviewing the LC Past Due Exemption Process for potential further modifications.

¹⁰¹ Transmission LC Past Due Exemption Process, TD-1001M-JA03.

PG&E is producing the April 2019 Transmission LC Past Due Exemption Process at PGE-2017Wildfires-OII-0000006558-567.

ii. Overview of Transmission Record Creation

PG&E's work on its transmission lines is governed by the ETPM Manual. The ETPM Manual sets out inspection and patrol work, maintenance work, and documentation practices relating to that work. LC Notifications typically are generated as a result of either a patrol or an inspection of a transmission facility. Before December 2018, inspections and patrols typically were performed by PG&E Troublemakers. As of December 2018, contractors who assist with enhanced inspections are also performing routine patrols and inspections.

(1) Routine Inspections and Patrols

A transmission facility ground inspection is a more detailed procedure than a patrol: while a patrol may be performed by walking, driving, or flying, ground inspections require a detailed close-up viewing of all sides of a transmission facility. Patrols are designed to identify issues such as broken or leaning poles and inadequate tree clearances. Ground inspections, by contrast, are aimed at detecting *any* structural problems or hazards that will adversely impact safety, service reliability, or asset life, and require an evaluation of when each identified condition warrants maintenance.

All overhead transmission line facilities are patrolled annually, unless they are due to be inspected in that year. The frequency of ground inspections, by contrast, depends on the voltage of the facility to be inspected, as well as the type of the inspected structure. For example, detailed ground inspections of 500 kV steel structures must be conducted every three

years, while detailed ground or aerial inspections of 115 kV steel structures must be conducted every five years.¹⁰²

Troublemakers and contractors who perform patrols use the “Transmission Line Inspection/Patrol Datasheet” to document and record in-field assessments of any abnormal conditions of electric transmission facilities during patrols. This datasheet is also used by Troublemakers and contractors during inspections, in addition to the “Object List” (a document that lists every structure to be inspected), to document their work and to verify the condition of the transmission assets.

Completed forms are submitted to the transmission Operating Clerk, who is responsible for scanning the inspection and patrol documents and attaching them to the patrol record in SAP. Troublemakers and contractors performing patrols or inspections must report immediately any priority “A” abnormal condition to the Transmission Supervisor and the Grid Control Center. Troublemakers and contractors must report any priority “B” condition to the Transmission Supervisor as soon as practical.

(2) Enhanced Inspections

PG&E is performing additional inspections of its transmission electric facilities, known as enhanced inspections, in accordance with PG&E’s WSP. The enhanced inspections include, for instance, drone and helicopter inspections. The contractors who perform these enhanced inspections follow the procedures set forth in the ETPM Manual, as outlined above for routine patrols and inspections, in addition to certain supplemental procedures. For example, contractors performing enhanced inspections use methods developed as a result of PG&E’s Failure Modes and Effects Analysis, which analyzed single points of failure of electric system

¹⁰² ETPM Manual, Table 11: Overhead Inspection Frequencies.

components that could lead to fire ignition. Enhanced inspections require the same documentation as routine inspections and patrols, as outlined above. Additionally, inspectors performing enhanced inspections are required to complete Pronto Forms to document the facilities reviewed during the course of their inspection.

iii. The Transmission Supervisor and the Centralized Inspection Review Team (“**CIRT**”)

The review of S5 Notifications is currently the responsibility of the CIRT, which was established to support PG&E’s Wildfire Safety Inspection Program (“**WSIP**”). Prior to CIRT’s establishment, Transmission Supervisors acted as SAP gatekeepers by reviewing patrol and inspection forms, including S5 Notifications, for accuracy and completeness. This task included reviewing both paper and electronic forms to check that all fields were completed, confirming the priority code and due date on the forms, and confirming the signature, date, and the Troubleman or contractor’s LAN ID. The Transmission Supervisor documented the review of these forms by initialing them. Following the Transmission Supervisor’s review, the creation of the LC Notification was confirmed in SAP. When the CIRT was established in December 2018, it initially provided an additional, supporting gatekeeping function in the review and prioritization of incoming S5 Notifications. The CIRT was responsible for the review of S5 Notifications identified through enhanced inspections. The Transmission Supervisors remained responsible for reviewing S5 Notifications created by Troublemens during routine patrols and inspections.

Since June 2019, the CIRT has been responsible for reviewing all S5 Notifications. As explained in more detail below, the CIRT can either reject, modify, or approve S5 Notifications. If CIRT approves an S5 Notification, CIRT creates an LC Notification.

PG&E's policies require the CIRT to review S5 Notifications for completeness and accuracy so that it can make an appropriate prioritization decision with respect to each S5 Notification it reviews. The prioritization decision is based on the priority code criteria from the ETPM Manual (*i.e.*, the same criteria that are used by Troublemakers and contractors). The CIRT then enters the proper information into SAP to generate an LC Notification. The CIRT's reviews and decisions are stored electronically in SAP.

If CIRT finds that the S5 Notification is missing necessary information, the CIRT must notify the Troublemaker or contractor and ask for the required additional information. Once the CIRT obtains the necessary information, the CIRT updates the LC Notification to reflect the information.

Troublemakers, repair crews, and supervisors, among others, can also delegate exemption decisions to the CIRT, in which case, the CIRT will review the current due date for the LC Notification and make a determination as to whether it should be changed.

C. Quality Management¹⁰³

PG&E's Electric Asset Management Quality Management Department ("**Electric QM**") performs audits of the processes, field work, and documentation within Electric Operations. Electric QM is comprised of two divisions, QA and QC. QA reviews PG&E's policies, procedures, and practices to confirm that they are in compliance with industry and regulatory standards. QC verifies that work completed meets procedural requirements through a quality verification process that includes audits and reviews of that work. Both divisions produce audit reports documenting their findings, which are distributed to the team being

¹⁰³ In this Section, PG&E is responding to Section II.A, C, D and G of Attachment B as to Topic D, Recordkeeping.

audited, as well as the supervisor and director. Findings requiring immediate repair are addressed immediately. Other findings are entered into PG&E's Corrective Action Program. Electric QM's audit schedule is a function of risk and safety and includes input from the Compliance Departments, senior management, and requests for audits from each line of business.

Electric QM aims to, among other things, assess the effectiveness and efficiency of the work processes relative to safety, system reliability, business operations, and regulatory compliance; identify best practices wherever possible; and work with the Line of Business team to develop a robust corrective action plan and track commitments to completion. With respect to work records specifically, Electric QM audits include the assessment of the quality of the documentation associated with patrols and inspections for a sample of documents in the region being audited.

D. Late EC and LC Notifications¹⁰⁴

A Notification is identified as late in SAP when its "Completion Date" is later than its "Required End Date." The below charts identify Notifications that meet these criteria based on data generated from SAP. The below data is consistent with PG&E's historical reporting to the Commission under GO 165 and in accordance with data requests from the Commission in advance of its audits of PG&E's distribution and transmission facilities.

PG&E is not including "A" priority EC and LC Notifications in the data below. Consistent with "Level 1 Safety Hazards" defined in GO 95, Rule 18, PG&E's policy is to immediately address any condition that is an "immediate safety and/or reliability risk with high probability for significant impact" and either repair the condition or make it safe. PG&E

¹⁰⁴ In this Section, PG&E is responding to Section III.D.1 of Attachment B.

documents these identified conditions, and the work associated to mitigate the safety risk, in “A” priority EC and LC Notifications. The SAP “Completion Date” associated with “A” priority Notifications, however, typically reflects the completion of paperwork and electronic processing of the Notification. In other words, if an “A” priority Notification is addressed immediately, the completion date in SAP may still be several weeks after those corrective actions were taken. As such, PG&E is unable to generate an SAP report that provides the number of “A” priority conditions that were not addressed immediately, separate from “A” priority conditions that were addressed but were pending close out in SAP. However, PG&E acknowledges that there have been instances in the past in which “A” priority conditions were not addressed immediately.

i. Distribution

The chart below includes the total number of “B,” “E,” and “F” EC Notifications by Division and year, for years 2013 to 2019, where the “Completion Date” was beyond the “Required End Date”, as reported in SAP. Based on the data available in SAP, approximately 30,000 EC Notifications were completed late, of the approximately 430,000 “B,” “E,” and “F” priority EC Notifications that were closed during this time period.

| Division | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|---------------|-------|------|------|------|------|------|------|-------|
| Central Coast | 1146 | 33 | 1 | 91 | 353 | 461 | 298 | 2383 |
| DeAnza | 1050 | 56 | 1 | 9 | 66 | 68 | 5 | 1255 |
| Diablo | 268 | 12 | 82 | 371 | 453 | 265 | 27 | 1478 |
| East Bay | 993 | 94 | 77 | 226 | 190 | 342 | 6 | 1928 |
| Fresno | 1709 | 194 | 55 | 106 | 17 | 20 | 48 | 2149 |
| Humbolt | 213 | 28 | 268 | 732 | 249 | 74 | 272 | 1836 |
| Kern | 426 | 32 | 102 | 76 | 122 | 19 | 2 | 779 |
| Los Padres | 397 | 4 | 21 | 93 | 79 | 55 | 46 | 695 |
| Mission | 140 | 4 | 23 | 86 | 93 | 88 | 8 | 442 |
| North Bay | 628 | 194 | 340 | 314 | 287 | 584 | 6 | 2353 |
| North Valley | 890 | 51 | 135 | 182 | 32 | 109 | 111 | 1510 |
| Peninsula | 551 | 24 | 23 | 179 | 171 | 252 | 22 | 1222 |
| Sacramento | 736 | 54 | 33 | 385 | 264 | 283 | 207 | 1962 |
| San Francisco | 217 | 8 | 10 | 14 | 55 | 78 | 8 | 390 |
| Sierra | 104 | 86 | 224 | 453 | 547 | 485 | 373 | 2272 |
| San Jose | 282 | 7 | 8 | 13 | 106 | 147 | 5 | 568 |
| Sonoma | 1212 | 15 | 79 | 97 | 136 | 287 | 56 | 1882 |
| Stockton | 374 | 39 | 180 | 630 | 458 | 56 | 386 | 2123 |
| Yosemite | 724 | 243 | 195 | 191 | 119 | 69 | 81 | 1622 |
| Grand Total | 12060 | 1178 | 1857 | 4248 | 3797 | 3742 | 1967 | 28849 |

ii. Transmission

The chart below includes the total number of “B,” “E,” and “F” LC Notifications by Division and year, for years 2013 to 2019, where the “Completion Date” was beyond the “Required End Date,” as reported in SAP. Based on the data available in SAP, approximately 4,400 LC Notifications were completed late, of the approximately 65,000 LC Notifications that were closed during this time period.

| Headquarters | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|------------------------------|-------------|------------|-------------|------------|------------|------------|------------|-------------|
| Various¹⁰⁵ | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Concord | 169 | 34 | 74 | 29 | 9 | 2 | 20 | 337 |
| Davis | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Eureka | 18 | 29 | 287 | 54 | 6 | 5 | 89 | 488 |
| Fremont | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Fresno | 103 | 13 | 41 | 16 | 18 | 9 | 13 | 213 |
| Lakeville | 109 | 73 | 67 | 59 | 19 | 69 | 80 | 476 |
| Martin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Metcalf | 170 | 35 | 46 | 8 | 1 | 1 | 6 | 267 |
| Midway | 100 | 68 | 45 | 21 | 0 | 0 | 3 | 237 |
| Moss Landing | 85 | 7 | 132 | 21 | 2 | 0 | 41 | 288 |
| Pismo Beach | 221 | 10 | 65 | 8 | 4 | 6 | 10 | 324 |
| Sacramento | 369 | 217 | 117 | 46 | 15 | 48 | 93 | 905 |
| Table Mountain | 129 | 26 | 157 | 87 | 37 | 111 | 158 | 705 |
| Victor | 75 | 13 | 20 | 1 | 1 | 41 | 18 | 169 |
| Grand Total | 1567 | 525 | 1051 | 350 | 112 | 292 | 531 | 4428 |

¹⁰⁵ LC Notifications may be associated with “various” headquarters where the Notification was not assigned a specific location. This may include, for example, air patrols that are broad in nature and apply to multiple locations.

E. Errors in EC and LC Notifications and Inspection Records¹⁰⁶

PG&E seeks to identify and has identified various types of errors in EC and LC Notifications and inspection and patrol records through routine reviews conducted by clerks, supervisors, centralized review teams, and Electric QM, as well as through non-routine reviews and internal audits and investigations. PG&E does not, however, track or store information about the various specific errors it has found through such reviews in such a way that it could comprehensively report to the Commission the number and nature of such errors found, by Division and year, from 2013 to 2019.

F. Employee At-Risk Pay Metrics¹⁰⁷

No employee at-risk pay metrics in any PG&E incentive plan relate to recordkeeping practices related to work orders completed late, incorrect work orders or missing inspection records.

¹⁰⁶ In this Section, PG&E is responding to Sections III.D.2 and III.D.3 of Attachment B.

¹⁰⁷ In this Section, PG&E is responding to Section II.F of Attachment B as to Topic D, Recordkeeping.

VI. HANDLING AND RETENTION OF EVIDENCE¹⁰⁸

A. Policies and Procedures¹⁰⁹

Since 2013, PG&E's policy, practice, and procedure with respect to the handling and retention of evidence has been to handle, preserve, and dispose of evidence in accordance with GO 95, Rule 19 ("**Rule 19**"). In this regard, we note that PG&E understands that its Rule 19 obligations are triggered when the Commission makes a formal request, the incident is identified as reportable, or the incident is identified as a major accident.¹¹⁰

PG&E's Law Claims department and its Claims Investigators generally are tasked with collecting and preserving relevant evidence and are responsible for ensuring that the handling and retention of evidence is consistent with PG&E's Rule 19 obligations. To that end, from 2013 through July 2019, Claims Investigators provided presentations to various field offices regarding the handling and retention of evidence and compliance with Rule 19. The versions of these presentation materials in use in 2013 were updated in 2014 and 2015.

On June 21, 2019, the Law Claims department published the First Responders Evidence Procedure ("Evidence Procedure"), which outlines PG&E's policy and procedure for handling and preserving evidence. The Evidence Procedure provides detailed guidance for

¹⁰⁸ Because PG&E did not take actions regarding the handling and retention of evidence directly in response to the 2014 State of Emergency proclamation, the February 8, 2014 letter from SED or Resolution ESRB-4, it is not providing a response to Section II.B of Attachment B as to Topic E, the Handling and Retention of Evidence.

¹⁰⁹ In this Section, PG&E is responding to Sections II.A, C, D, E and G of Attachment B as to Topic E, the Handling and Retention of Evidence.

¹¹⁰ "Each utility shall provide full cooperation to Commission staff in an investigation *into any major accident (as defined in Rule 17) or any reportable incident (as defined in CPUC Resolution E-4184)*, regardless of pending litigation or other investigations, including those which may be related to a Commission staff investigation. Once the scene of the incident has been made safe and service has been restored, each utility shall provide Commission staff *upon request* immediate access to: . . ." Rule 19 (emphasis added).

employees who are likely to be the first to arrive at the scene of an incident, including how to determine reportability, tag physical evidence, disassemble physical evidence, transfer physical evidence, and track physical evidence. On July 8, 2019, the Law Claims department instituted a web-based training instead of in-person presentations, which covers Rule 19 and the Evidence Procedure. Several thousand employees from departments including Electric, Gas, VM, and Safety & Health will be required to take this web-based training each year.

PG&E is producing the Evidence Procedure at PGE-2017Wildfires-OII-0000000001-013.

B. Incidents of Rule 19 Violations¹¹¹

With respect to the Commission's request for information concerning "instances in which PG&E did not comply with Commission requirements regarding handling and retention of evidence", the Commission cited PG&E with three Notices of Violation ("NOV") for failure to follow Rule 19 in the SED's specified time frame. Those violations are as follows:

- E20160718-01: Failure to preserve a service drop from a fire incident location in San Jose on May 21, 2013.
- E20170731-01: Failure to preserve an insulator from a pole top fire in San Francisco on July 30, 2017.
- E20180112-01: Failure to preserve a service line associated with a structure fire in Orland on December 16, 2017.

As PG&E noted in its responses to these NOV's, PG&E respectfully contests the Commission's findings as to E20170731-01 and E20180112-01, as the evidence in both instances was disposed of before PG&E was aware that the incidents were reportable and before

¹¹¹ In this paragraph, PG&E is responding to Section III.E.1 of Attachment B. Aside from the NOV's it receives from the Commission, PG&E does not systematically track incidents of failure to comply with the Commission's evidence handling requirements, such that it could provide a full and accurate account of all such instances from 2013 to 2019. PG&E is continuing to review records to determine if there are any other such instances.

the Commission requested access to such evidence. PG&E seeks direction from the Commission on how to best meet its expectations.

C. Employee At-Risk Pay Metrics¹¹²

No employee at-risk pay metrics in any PG&E incentive plans relate to the handling and retention of evidence.

¹¹² In this paragraph, PG&E is responding to Section II.F of Attachment B as to Topic E, the Handling and Retention of Evidence.

VII. CONDUCTOR-TO-CONDUCTOR CONTACT

The risk of conductor-to-conductor contact is addressed in both the way PG&E designs and builds its overhead infrastructure and how it maintains its electric facilities as part of its electric maintenance program. PG&E's design and construction standards mitigate conductor-to-conductor contact by meeting or exceeding CPUC regulations concerning vertical, horizontal, and radial clearances between conductors, based on their voltages, including GO 95, Rule 38. PG&E's electric maintenance program includes inspection procedures designed to monitor lines for conditions that could lead to conductor-to-conductor contact and correct any issues identified, in compliance with GO 95, Rule 18, and GO 165.

As described in more detail below, PG&E has recently adopted new construction standards that will further reduce the risk of arcing from conductor-to-conductor contact, and new maintenance procedures that provide more specific guidance on identifying uneven line sag that may be more likely to lead to conductor-to-conductor contact. While PG&E does not presently have plans to update its design and construction or maintenance standards relevant to conductor-to-conductor contact over the next 12 months, it is continuing to review and evaluate additional measures that may be taken to increase the safety and reliability of its electric assets.¹¹³

A. PG&E's Design and Construction Standards Relevant to Conductor-to-Conductor Contact¹¹⁴

PG&E's design and construction standards relevant to conductor-to-conductor contact have largely remained the same between January 1, 2013 and the present, as CPUC

¹¹³ In this paragraph, PG&E is responding to Section II.E of Attachment B as to Topic F, Conductor-to-Conductor Contact.

¹¹⁴ In this section, PG&E is responding to Sections II.A, C, D, and G of Attachment B as to Topic F, Conductor-to-Conductor Contact.

regulations related to vertical, horizontal, and radial clearances have not materially changed during that period. Unless otherwise specified, the following design and construction standards have been in place since January 1, 2013 or earlier.

i. Distribution Clearance Standards

PG&E's construction standards for cross-arm assemblies, and thus, horizontal spacing between conductors on the same span, are set forth in Document 015116, 3-Wire Cross-arm Construction 12, 17 and 21 kV Circuits, which PG&E is producing at PGE-2017Wildfires-OII-0000001885-894.¹¹⁵ The standards for triangular cross-arm construction are set forth in Document 066196, Standard Framing for Tangent Construction Distribution Pole Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000001829-834.¹¹⁶ The horizontal spacing of conductors on cross-arms in Document 015116 and Document 066196 is designed to comply with GO 95, Rule 38 with respect to minimum clearance and GO 95, Rule 43 with respect to temperature and loading. For example, under Rule 38, PG&E generally must maintain horizontal pin spacing of 17.5 inches between longitudinal 12 kV conductors on the same cross-arm under typical loading and weather conditions.¹¹⁷

Because PG&E did not take actions regarding conductor-to-conductor contact directly in response to the 2014 State of Emergency proclamation, the February 8, 2014 letter from SED, or Resolution ESRB-4, it is not providing a response to Section II.B of Attachment B as to Topic F, Conductor-to-Conductor Contact.

¹¹⁵ PG&E is also producing prior versions of Document 015116 at PGE-2017Wildfires-OII-0000001855-884.

¹¹⁶ PG&E is also producing prior versions of Document 066196 and related documents at PGE-2017Wildfires-OII-0000002524-543, PGE-2017Wildfires-OII-0000002557-571, PGE-2017Wildfires-OII-0000002544-548, PGE-2017Wildfires-OII-0000002573-577, PGE-2017Wildfires-OII-0000002549-556, PGE-2017Wildfires-OII-0000002572.

¹¹⁷ GO 95, Rule 38's clearances may be reduced by 5 to 10 percent, depending on the HFTD area, because of temperature and loading as specified in Rule 43.

PG&E's construction standards setting forth sags and tensions for conductors on wood pole lines are contained in Document 015221, Sags and Tensions for Overhead Conductors on Wood Pole Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000001397-486.¹¹⁸ The guidelines in this document were designed to meet or exceed the minimum vertical and radial conductor-to-conductor clearances found in GO 95, Rule 38, and ensure that those clearances are maintained where, for example, different circuits have different sag, where snow loading is an issue, and under different temperature and loading conditions.¹¹⁹

PG&E Document 066210, Overhead and Underground Facilities – Construction Requirements, which PG&E is producing at PGE-2017Wildfires-OII-0000001798-812,¹²⁰ requires PG&E's estimating and construction personnel to perform field checks, job pre-checks, and job post-checks. The standard provides guidance for estimators and construction personnel performing those checks, instructing them to ensure various clearances between conductors and other objects are met, including a check that conductor-to-conductor clearances are in compliance with GO 95 requirements.

Similarly, PG&E's Construction Completion Standards Checklist, in Bulletin TD-2999B-013, which PG&E is producing at PGE-2017Wildfires-OII-0000001837-854,¹²¹ requires the Electric Crew Lead, after completion of an overhead construction job, to identify

¹¹⁸ PG&E is producing prior versions of Document 015221 at PGE-2017Wildfires-OII-0000001487-747.

¹¹⁹ Document 015221, Sags and Tensions for Overhead Conductors on Wood Pole Lines, also contemplates the minimum sag requirements found in GO 95, Appendix C, and the minimum ground-to-conductor clearances found in GO 95, Rule 37. The CPUC has not promulgated regulations directly governing maximum sag.

¹²⁰ PG&E is producing prior versions of Document 066210 at PGE-2017Wildfires-OII-0000001748-797, PGE-2017Wildfires-OII-0000001813-828.

¹²¹ PG&E is producing prior versions of Bulletin TD-2999B-013 at PGE-2017Wildfires-OII-0000001835-836.

and repair any deficiencies, including a check for “[c]learances maintained to other conductors” and “[c]onductors sagged correctly.”

ii. Transmission Clearance Standards

Clearances and spacings between conductors on transmission lines are also designed to comply with GO 95 requirements, and construction standards implementing those line clearances and spacings can be found in Document 043621, Double Circuit Post-Type Construction 44 - 115 kV Pole Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000001910-915;¹²² Document 045707, Vertical and Delta Post Type Construction 44-70 kV Pole Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000001932-936; Document 048873, Engineering Standard Triangular Construction 115kV Wood Pole Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000001927-931; Document 053804, Triangular Post and Suspension Construction 44-70 kV Pole Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000001917-926; and Document 470591, Electrical Clearances for 60 kV, 70 kV, 115 kV and 230 kV Overhead Transmission Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000001937-938.

PG&E Document 068177, Overhead Transmission Line Design Criteria, which PG&E is producing at PGE-2017Wildfires-OII-0000002646-665,¹²³ outlines mandatory design requirements for PG&E’s transmission lines. Among other criteria, Document 068177 mandates a series of minimum clearances between conductors, considering various temperature, wind, and loading conditions.

¹²² PG&E is producing prior versions of Document 043621 at PGE-2017Wildfires-OII-0000001906-909, PGE-2017Wildfires-OII-0000001916.

¹²³ PG&E is producing prior versions of Document 068177 and related documents at PGE-2017Wildfires-OII-0000002578-621, PGE-2017Wildfires-OII-0000002624-645, PGE-2017Wildfires-OII-0000002666-686.

Since approximately 2014, PG&E Utility Procedure TD-1018P-01, the Transmission Construction Completion Standards Checklist, produced herewith at PGE-2017Wildfires-OII-0000001895-903, has required crew leads and contract inspectors to use the Transmission Overhead Construction Completion Standard Checklist, TD-1018P-01-F01, produced herewith at PGE-2017Wildfires-OII-0000001904-905.¹²⁴ The checklist instructs crew leads and contract inspectors to identify whether conductors are sagged correctly and whether required conductor-to-conductor clearances are maintained.

iii. Line Spacers and Spreader Brackets (Distribution)

PG&E has a longstanding practice of installing spacers in areas where they are likely to aid in the prevention of conductor-to-conductor contact. PG&E provides guidance concerning where the use of spacers may be appropriate, but leaves the decision as to whether to use spacers to the discretion of field personnel.

For example, Document 061149, Raptor Safe Construction and Wildlife Protection, which PG&E is producing at PGE-2017Wildfires-OII-0000002241-280,¹²⁵ sets forth PG&E's standards for construction in Raptor Concentration Zones (areas where raptors are generally found in abundance, including federal and state wildlife refuges). The standards provide for the use of spacers to guard against the risk of conductor-to-conductor contact caused by flocks of birds that perch on lines and cause lines to swing when they take flight, as well as other conditions that could lead to issues with mid-span spacing, where appropriate. In June 2013, PG&E updated Document 061149 to provide for the use of spacers in "windy areas."

¹²⁴ PG&E does not regularly maintain all historical versions of policies that are not currently in effect. PG&E is producing the currently effective version of the documents described in this paragraph at PGE-2017Wildfires-OII-0000001895-905.

¹²⁵ PG&E is producing prior versions of Document 061149 at PGE-2017Wildfires-OII-0000002059-240.

Document 072155, Long Span Construction for Distribution Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000002012-014,¹²⁶ sets forth PG&E's standards for long span construction on distribution lines, and suggests the installation of spacers in situations where there is a possibility of conductors contacting each other during abnormal conditions, including wind and snow unloading. Similarly, Document 015123, 4-Wire Cross-arm Construction 750 to 6,500 Volt Circuits, Wood Pole Distribution Lines, which PG&E is producing at PGE-2017Wildfires-OII-0000002020-031,¹²⁷ states that spacers may be necessary in windy areas for spans over 200 feet.

Similarly, Document 015187, Extended Rack Construction 0-750 V, which PG&E is producing at PGE-2017Wildfires-OII-0000001989-998,¹²⁸ requires the use of insulated spreader brackets to maintain vertical conductor clearances where spans exceed 135 feet in extended rack construction. Document 036229, Common Neutral Overhead Construction, which PG&E is producing at PGE-2017Wildfires-OII-0000001959-968,¹²⁹ extends the same requirement to any situation in which spreader brackets may be needed to maintain adequate conductor-to-conductor clearances when replacement of an existing neutral with a large common neutral is required in extended rack construction.

iv. Use of Tree Wire in High Fire-Threat Areas (Distribution)

In addition to these design and construction standards, as of December 2018, PG&E has been using tree wire rather than uninsulated conductors for all new distribution level

¹²⁶ PG&E is producing prior versions of Document 072155 at PGE-2017Wildfires-OII-0000002008-011, PGE-2017Wildfires-OII-0000002015-019.

¹²⁷ PG&E is producing prior versions of Document 015123 at PGE-2017Wildfires-OII-0000002032-058.

¹²⁸ PG&E is producing prior versions of Document 015187 at PGE-2017Wildfires-OII-0000001999-2007.

¹²⁹ PG&E is producing prior versions of Document 036229 at PGE-2017Wildfires-OII-0000001939-958, PGE-2017Wildfires-OII-0000001969-988.

construction and reconstruction work in Tier 2 and Tier 3 HFTD areas, pursuant to PG&E Utility Bulletin TD-059626B-005, Revised Design and Requirements for Aluminum, ACSR, and Copper Tree Wire, which PG&E is producing at PGE-2017Wildfires-OII-0000002484-523.¹³⁰ Among other things, the insulation of tree wire reduces the risk that conductor-to-conductor contact will result in arcing.

B. PG&E's Maintenance Practices Relevant to Conductor-to-Conductor Contact¹³¹

i. Distribution Practices

Between January 1, 2013 and the present, PG&E's maintenance practices relevant to conductor-to-conductor contact on distribution lines have been governed by PG&E's EDPM Manual. Unless otherwise specified, the following maintenance practices have been in place since January 1, 2013 or earlier.

PG&E's EDPM Manual was designed to comply with CPUC GO 165, which has, between January 1, 2013 and the present, mandated a baseline minimum frequency for inspections of overhead equipment of every five years. The EDPM Manual and its attachments provide PG&E's Compliance Inspectors with guidance for inspections of overhead equipment. The EDPM Manual requires Compliance Inspectors to identify, evaluate, and prioritize abnormal conditions that adversely impact safety or reliability, including conditions affecting overhead equipment that could increase the risk of conductor-to-conductor contact.

Two of the EDPM Manual's attachments, the Overhead Inspection Job Aid, TD-2305M-JA02, and the Overhead Clearance Evaluation Job Aid, TD-2305M-JA12, provide

¹³⁰ PG&E is producing prior versions of Bulletin TD-059626B-005 are being produced herewith at PGE-2017Wildfires-OII-0000002446-483.

¹³¹ In this section, PG&E is responding to Sections II.A, C, D, and G of Attachment B as to Topic F, Conductor-to-Conductor Contact.

specific guidance instructing Compliance Inspectors to evaluate conductor-to-conductor clearances for compliance with GO 95, Rule 38, and guidance instructing Compliance Inspectors to identify evidence of arcing or tracking on insulators, which can result from conductor-to-conductor contact, among other causes. Further, Compliance Inspectors are instructed to examine leaning distribution poles to evaluate whether the leaning pole is causing excessive conductor sag. When PG&E's Compliance Inspectors identify evidence of conductor-to-conductor contact, they generate an EC Notification, prompting remedial actions to repair the condition affecting safety or reliability.

By January 1, 2013, PG&E had increased the frequency of its inspection of overhead equipment in Urban Wildland Fire and Other Wildland Fire areas from once every five years, to once every year, and required that they be completed earlier in the calendar year. Pursuant to TD-2301B-004, Urban Wildland Fire (UWF) Area Actions, which PG&E is producing at PGE-2017Wildfires-OII-0000002378-387,¹³² PG&E Compliance Inspectors conducting inspections in Urban Wildland Fire and Other Wildland Fire areas were instructed to identify excessively sagging primary conductors. On January 1, 2018, following the CPUC's promulgation of the HFTD Maps, PG&E transitioned from performing annual inspections in Urban Wildland Fire and Other Wildland Fire areas to performing annual patrols in Tier 2 and Tier 3 HFTD areas in compliance with GO 165.

In April 2019, PG&E adopted TD-2305M-JA02 (Revision 6), Job Aid: Overhead Inspection, which PG&E is producing at PGE-2017Wildfires-OII-0000002281-377, a revised attachment to the EDPM Manual adding instructions for inspectors of overhead equipment to

¹³² PG&E is producing prior versions of TD-2301B-004, Urban Wildland Fire (UWF) Area Actions are being produced herewith at PGE-2017Wildfires-OII-0000002388-409.

look for spans with uneven conductor sagging because uneven conductors may sway at different rates in wind, which can result in conductor-to-conductor contact. Specifically, inspectors are instructed to look for damaged dead-end hardware that could cause uneven conductor sag, as well as signs of annealing, excessive sag, splices, or discoloration that could lead to an increased risk of conductor failure or conductor-to-conductor contact.

In 2019, PG&E also conducted additional, enhanced inspections, independent of its GO 165 program patrols and inspections, in HFTD areas pursuant to the WSIP. As discussed in the WSP, in 2019 PG&E performed enhanced inspections on its distribution structures in HFTD areas, as well as nearby structures, with a focus on failure mechanisms that can initiate fires. During these inspections, inspectors were instructed to execute all EDPM inspection procedures, among others.

ii. Transmission Practices

PG&E's ETPM Manual requires conductor-to-conductor clearances that meet or exceed the requirements of GO 95. In November 20, 2018, the ETPM Manual was revised to direct transmission line inspectors to identify instances of excessively sagging conductors, which may contribute to an increased risk of conductor-to-conductor contact.

Under the ETPM Manual, overhead inspections of transmission equipment occur every three to five years, based on the voltages of the lines. In 2019, PG&E also conducted additional, enhanced inspections, independent of its GO 165 program patrols and inspections, in HFTD areas pursuant to PG&E's WSIP. As discussed in the WSP, in 2019 PG&E performed enhanced inspections on its transmission structures in HFTD areas, as well as nearby structures, with a focus on failure mechanisms that can initiate fires. During these inspections, inspectors were instructed to execute all ETPM inspection procedures, among others.

C. Instances of Conductor-to-Conductor Contact Between January 1, 2013 and May 31, 2019¹³³

Identifying instances of conductor-to-conductor contact is difficult because electrical data alone typically cannot be used to distinguish a conductor-to-conductor fault from any other type of fault. In addition, the physical evidence of arcing from conductor-to-conductor contact may be limited or may not be distinguishable from arcing from another type of event, such as arcing from a foreign object contacting the line or an earlier event. Further, PG&E's records do not always distinguish conductor-to-conductor contact from other types of equipment contact leading to an outage, *e.g.*, transformer-to-conductor or guy-to-conductor contact.

Acknowledging these limitations, PG&E is producing at PGE-2017Wildfires-OII-0000001938 a spreadsheet containing information from all Integrated Logging Information System ("ILIS") records from January 1, 2013 to May 31, 2019 of each outage for which:

1. The "Basic Cause" was reported as "Equipment Failure"; the "Supplemental Cause" was reported as "Overhead" or "Other"; the "Failed Equipment" was reported as "Conductor, Overhead" or "Secondary"; and the "Equipment Condition" was reported as "Arcing," "Burned/Flashed," "Burned Open," or "Together."
2. The "Basic Cause" was reported as "Company Initiated"; the "Supplemental Cause" was reported as "Improper Construction"; the "Failed Equipment" was reported as "Conductor, Overhead" or "Secondary"; and the "Equipment Condition" was reported as "Arcing," "Burned/Flashed," "Burned Open," or "Together."

PG&E is also producing a spreadsheet containing data from multiple sources, including Grid Operations data, System Protection data, and cause data from internal communications from January 1, 2013 to May 31, 2019 at PGE-2017Wildfires-OII-0000005949. The spreadsheet contains a record of each outage PG&E believes was likely to have involved contact between energized electric supply conductors of the same circuit. In the spreadsheet,

¹³³ In this section, PG&E is responding to Section III.F of Attachment B.

PG&E has highlighted the outages PG&E believes to have involved contact between conductors that remained normally attached to supporting structures, and contacted each other between adjacent structures.

Please note that information regarding outages contained in PG&E's records is based upon the best judgment of PG&E field response personnel at the time of their response to an outage. Because of the difficulties described above with respect to identifying instances of conductor-to-conductor contact, some faults due to conductor-to-conductor contact may not be recorded as such, and conversely, some faults identified as due to conductor-to-conductor contact may have in fact had a different cause.

D. Employee At-Risk Pay Metrics¹³⁴

No employee at-risk pay metrics in any PG&E incentive plans relate to monitoring and other practices to prevent conductor-to-conductor contact.

¹³⁴ In this Section, PG&E is responding to Section II.F of Attachment B as to Topic F, Conductor-to-Conductor Contact.

VIII. OTHER RISKS

As detailed in PG&E's Initial Report in Response to OII and Order to Show Cause and in Section IV.A above, in recent years California has experienced dramatic and rapidly evolving environmental changes, including record drought, unprecedented tree mortality, and extreme weather events. In October of 2017, a confluence of abnormal weather events resulted in the catastrophic October 2017 North Bay Fires. Until that time, the risk of wind-driven, catastrophic wildfires in California was understood by PG&E, the Commission, CAL FIRE, and others to be largely a Southern California risk. The October 2017 North Bay Fires marked a substantial shift in the wildfire risk facing PG&E's service territory and caused PG&E to significantly expand the work it had already done to identify and respond to wildfire risk in Northern California.

This section first provides information and documents concerning internal analyses PG&E has conducted or external expert advice or opinion PG&E has sought regarding the impact of climatological conditions such as drought, wind, and climate change, on wildfire risks in its territory. Second, this section provides information and documents concerning PG&E's analyses, policies, and procedures that consider local area vulnerability to wildfire. Finally, PG&E provides a chart indicating whether the origin location of each wildfire investigated by SED is in a local area recognized by PG&E as susceptible to wildfires.

A. PG&E's Analysis of the Impact of Climatological Conditions on Wildfire Risk¹³⁵

As climate change has accelerated and California has suffered from longer and more intense droughts, PG&E has assessed the impact of these climatological risks on its facilities generally and its wildfire risk in particular. As discussed in Section IV.A, prior to the

¹³⁵ In this section, PG&E is responding to Sections III.G.1 and 2 of Attachment B.

North Bay Fires, it was generally understood that the risk of wind-driven, catastrophic power line fires was relatively low in Northern California as compared to Southern California. This risk is increasing at a more rapid pace than expected. More recently, PG&E's Meteorology group has leveraged its newly developed 30-year climatology of PG&E's full service territory to study the history of Diablo wind events so that it can better understand and plan for the growing risks associated with Diablo winds in the future.

i. PG&E's 2016 Climate Change Vulnerability Assessment

In 2016, PG&E released its Climate Change Vulnerability Assessment, a report based on the preliminary results of PG&E's multi-year Natural Hazard Asset Performance initiative and part of its voluntary participation with the U.S. Department of Energy's Partnership for Energy Sector Climate Resilience, a public-private program aimed at improving energy security against extreme weather and climate change. Two of the key risks and impacts of climate change that the assessment identified were wildfires and drought. The report noted that climate change will increase wildfire frequency and intensity as "rising temperatures, a reduced snowpack and altered precipitation patterns [will] increase the flammability of potential fuel sources over longer periods of time, which will affect wildfire size, frequency and severity."¹³⁶ It also noted that the California Climate Change Center estimated that wildfire risk would increase approximately 300 percent by mid-century compared to the 1990–2010 average fire frequency. In addition, the report identified that extreme drought, driven by climate change, would further impact wildfire risk because "[a] hotter and drier climate, along with potentially

¹³⁶ Pacific Gas and Electric Company's Climate Change Vulnerability Assessment at 41.

more frequent and severe droughts, could alter fire fuel conditions in ways that promote larger, more catastrophic fires.”¹³⁷

In addition to identifying risks, the Climate Change Vulnerability Assessment identified the actions PG&E was taking to address the increased wildfire risk from climate change and drought, including pre-treatment of utility infrastructure with fire retardant, utilizing infrared technology, and visual inspections to identify weaknesses in wire connection equipment that could cause lines to separate, analyzing wire-down data to reduce future wire-down events, expanding vegetation inspection and mitigation, funding local Fire Safe Councils to reduce fuel density and increase defensible space and escape route safety, funding aerial fire patrols and lookout cameras to identify and quickly suppress fire outbreaks, and supporting CAL FIRE’s wildfire public education programs.

In November 2016, PG&E released an updated Climate Change Assessment that included several additional resilience measures, including collaborating with researchers at Humboldt State University to build a model to predict locations of future tree mortality across its service area. In connection with this model, PG&E also expanded its debris management program whereby PG&E would haul away certain dead or dying trees that could come in contact with PG&E electric lines or other service components at no cost to homeowners.

PG&E is producing the 2016 Climate Change Vulnerability Assessment and its updated November 2016 Climate Change Vulnerability Assessment reports at PGE-2017Wildfires-OII-0000002739-861.

¹³⁷ *Id.* at 37.

ii. PG&E's 2017 Climate Change Risk Assessment

In connection with its 2017 Risk Assessment and Mitigation Phase (“**RAMP**”) filing, PG&E completed a quantitative risk assessment that evaluated the risks posed by climate change, including the increased risk of wildfires and drought, and proposed foundational work to help the Company anticipate and plan for a changing “new normal.” In its assessment, PG&E relied on a combination of historical and projected information for key climate and weather variables to determine how much particular risk drivers, such as drought and wildfire, may increase in frequency due to the changing climate. With respect to wildfire risk in particular, the assessment compared two scenarios—one denoting relatively low greenhouse gas emission projections, the other denoting relatively high greenhouse gas emission projections—to estimate the additional percentage of PG&E service area burned per year through two timeframes: 2022 and 2050.

PG&E used this risk assessment to propose foundational work to help the Company better understand the risks posed to it by climate change and to increase the Company's climate resilience. These proposals include but are not limited to:

- Developing and piloting a climate resilience visualization tool intended to help incorporate climate risk mitigation into PG&E's decision-making through existing processes such as new major infrastructure investments and to make climate impact information readily available to help guide decisions in the face of a changing climate.
- Establishing governance for integrating climate resilience into line of business procedures. As part of this proposal, PG&E established an executive-level

Climate Resilience Coordination Committee to guide the work of incorporating climate resilience across the Company.

- Developing internal metrics to track and measure progress addressing the risks associated with climate change, the impacts of climate change on PG&E, as well as Company actions to address these impacts.
- Developing trainings to educate PG&E staff about the risk climate change poses to the Company's assets, infrastructure, operations, employees, and customers, and equip them to utilize climate resilience tools and metrics.
- Conducting "deep dives" into a different climate change driver each year, including a "deep dive" into the impact of climate change on wildfire risk.
- Supporting ongoing climate change research to evolve PG&E's understanding of potential climate change impacts within its service area and the risks posed to PG&E's assets, infrastructure, operations, employees, and customers.
- Developing line of business specific plans to prioritize assets at risk from the impacts of climate change and develop a framework to assess the need to replace, upgrade, harden, or relocate infrastructure.

PG&E's climate change quantitative risk assessment is described in detail in PG&E's 2017 RAMP Report, which PG&E is producing at PGE-2017Wildfires-OII-0000002687-738.¹³⁸

¹³⁸ The complete 2017 RAMP Report
<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M201/K962/201962691.PDF>.

iii. PG&E's 2019 Diablo Wind Event 30-Year Study

In 2019, PG&E's Meteorology group began a review of Diablo wind events in PG&E's territory using the company's 30-year climatology history, which provides grid-point level weather data including, wind, temperature, relative humidity, and fuel moisture. The project uses Diablo wind criteria described in a July 2018 study, which defined Diablo-like winds as consisting of north to easterly winds at speeds greater than 25 miles per hour and relative humidity less than 30% that last for more than three consecutive hours.¹³⁹ PG&E reviewed its 30-year climatology data for wind events fitting these criteria to identify potential Diablo wind event "hot spots." PG&E will use the hot spots identified to help determine the best locations to site additional PG&E weather stations for real-time weather monitoring and fire danger analysis.

PG&E's Diablo Wind Event 30-Year Study is ongoing. PG&E is producing its progress report on the study, dated March 2019, at PGE-2017Wildfires-OII-0000005641-658. PG&E notes that the information included in the progress report is preliminary and does not represent PG&E's conclusions about Diablo wind events in its territory.

B. PG&E's Evaluation of Local Area Vulnerability to Wildfire Risk¹⁴⁰

PG&E recognizes that fire risk in its territory is localized, with different areas within its territory being more or less susceptible to fire generally or at different times throughout the year. As detailed below, PG&E has long relied on both internal and external assessments of local area vulnerability in determining where additional wildfire mitigation measures are needed. And as wildfire risk in its territory has changed and increased in recent

¹³⁹ "A Surface Observation Based Climatology of Diablo-Like Winds in California's Wind Country and Western Sierra Nevada", Smith et al 2018, <https://www.mdpi.com/2571-6255/1/2/25>.

¹⁴⁰ In this section, PG&E is responding to Sections III.G.3 and 5 of Attachment B.

years, PG&E has significantly enhanced its internal forecasting and modeling capabilities to identify local area risk specific to its territory and has developed PG&E-specific risk analyses to ensure it prioritizes the greatest risk and highest risk areas.

i. PG&E's Historical Use of Local Fire Weather Forecasting, Fire Danger Ratings, and Internal Assessment of Local Fire Threat Areas

Since before 2013, PG&E has analyzed fire risk on a local area level and has taken additional measures to mitigate those localized risks. For example, as reflected in PG&E's 2012¹⁴¹ and 2014 Fire Prevention Plans filed with the Commission, PG&E's Meteorology group closely monitored localized weather and fire danger forecasts from multiple sources including the United States Forest Service (Fire Danger Class forecast maps), National Weather Service (Red Flag Warnings), Geographical Area Coordination Centers (7-Day Significant Fire Potential Outlook) and local National Weather Service offices (local Fire Weather page and Fire Weather Forecast discussion), as well as weather model forecast data for significant fire-weather parameters (rain, wind, temperature and relative humidity) with localized fire danger information. PG&E's Meteorology group analyzed and disseminated key data from these sources to PG&E personnel in daily and weekly fire danger forecasts and used the information to brief the company on fire weather threats across its territory.

PG&E also distributed daily fire danger ratings that were provided daily by CAL FIRE through 2014, which PG&E used to evaluate local fire risk in each of the geographic FIAs¹⁴² in its service territory and implement responsive fire mitigation efforts. For example, as

¹⁴¹ PG&E's 2012 Fire Prevention Plan reflects PG&E's plan for 2013.

¹⁴² FIAs were originally developed by the USFS Pacific Southwest Forest and Range Experiment Station (now the Pacific Southwest Research Station) in 1959 and updated in the late 1960s and are still in use today by state (e.g., CAL FIRE) and federal agencies (e.g., USFS). These agencies refer to these areas as Fire Danger Ratings Areas.

discussed in the Line Recloser section above, PG&E's Utility Operations Standard S1464, "Fire Danger Precautions in Hazardous Fire Areas," directed employees not to close line reclosers in FIAs rated "Very High" or "Extreme" that had tested automatically and locked out, until the overhead lines in the involved protection zone were patrolled and all found trouble was cleared. Standard S1464 also incorporates additional operational requirements, including prohibitions against burning, welding, blasting, smoking, and driving off cleared roads, to reduce the risk of PG&E work starting a fire in areas with a "Very High" or "Extreme" daily fire danger threat ratings.

In addition, since before 2013, PG&E has taken additional fire mitigation measures in areas identified as having an elevated fire risk based on the CPUC's interim fire-threat maps (*e.g.*, REAX CIP Map) or PG&E's own internal risk assessment. For example, as early as 2009, PG&E identified UWF areas—as sections of PG&E's service territory with an elevated fire risk identified by CAL FIRE or based on fire history, with steep terrain and high population density.¹⁴³ Later in 2012, PG&E engaged Reax Engineering to develop additional methodology for modeling wildfire risk areas, resulting in the establishment of OWF areas, which were new high fire threat areas primarily located in rural areas. The Reax Engineering model looked at factors including ignition source potential, ignition potential, proximity to population and federal lands, and containment escape potential.

Pursuant to Electric T&D Bulletin TD-2301B-004, in 2013 PG&E adopted additional overhead inspection requirements in UWF and OWF areas to be completed annually (as opposed to bi-annual patrols) by March 31, before the start of wildfire season. In evaluating

¹⁴³ In determining areas identified as high fire risk by CAL FIRE, PG&E utilized CAL FIRE's FRAP Map.

any hazardous conditions associated with distribution facilities, inspectors were guided to specifically evaluate whether the terrain and facility conditions could create additional risk for fire ignition and rapid spread. Any EC Notifications generated as part of those inspections that identified a fire risk were required to be completed by June 30 each year. PG&E's 2012 and 2014 Fire Prevention Plans likewise reflect the additional detailed inspections in OWF and UWF areas.

PG&E is producing its 2012 and 2014 Fire Prevention Plan, Electric T&D Bulletin TD-2301B-004,¹⁴⁴ and a map reflecting the UWF and OWF areas identified by PG&E for additional fire mitigation measures at PGE-2017Wildfires-OII-0000005682-696 and PGE-2017Wildfires-OII-0000005950-960. PG&E is also producing its 2015 and 2017 Fire Prevention Plans and its 2019 WSP, which reflect PG&E's continued use of internally and externally identified fire threat areas and fire danger ratings to prioritize its fire mitigation efforts, at PGE-2017Wildfires-OII-0000000014-192, PGE-2017Wildfires-OII-0000005697-713, and PGE-2017Wildfires-OII-0000005762-776.

ii. PG&E's Development of Internal High Resolution Weather Modeling, Storm Outage Prediction Modeling, and Fire Danger Ratings

In 2014, PG&E began a project under the CPUC's Electric Program Investment Change ("EPIC") 1.05 Program to develop an improved weather forecast system—the PG&E Operational Mesoscale Modeling System, or POMMS—based on the Weather Research and Forecasting ("WRF") mesoscale modeling to allow PG&E to model weather at higher resolution, which in turn would help improve the accuracy and granularity of its weather-based forecast applications, such as storm outage predictions and fire danger modeling. While the

¹⁴⁴ PG&E is producing prior versions of Electric T&D Bulletin TD-2301B-004 at PGE-2017Wildfires-OII-0000006470-480.

program was not completed until the end of 2016, PG&E incorporated the improved forecasting and modeling capabilities into its assessment of local fire weather conditions throughout the course of the program. For example, PG&E's 2015 Fire Prevention Plan highlighted PG&E's use of POMMS for fire weather forecasting:

“The PG&E meteorology department also runs its own weather forecasting model known as POMMS, the PG&E Operational Mesoscale Modeling System, which outputs granular forecasts of important fire weather parameters including wind speed, temperature, relative humidity, and precipitation. The model also produces key fire weather indicators such as the Fosberg Fire Weather Index and has also been linked to the National Fire Danger Rating System (“**NFDRS**”), to derive key fire danger indicators, such as the Energy Release Component, Ignition Component, and Spread Component, etc. PG&E Meteorology is piloting the use of these POMMS-driven fire danger indicators to develop more granular and informative fire danger information than what is publicly available.”¹⁴⁵

In 2015, the EPIC 1.05 Program used POMMS as a foundation to improve PG&E's existing Storm Outage Prediction Project (“**SOPP**”) model, a collection of tools and techniques developed by PG&E to compare weather forecast to previous weather conditions and outage activity to predict future outage activity. One of the limitations of the SOPP model was the accuracy and granularity of the numerical weather input data that fed into the model, which had a relatively low resolution at the surface that had to be downscaled to estimate more detailed surface conditions. Using the POMMS data as an input to the SOPP model allowed for a more granular depiction of forecasted weather conditions at the surface and enabled better

¹⁴⁵ 2015 Fire Prevention Plan at 3-4.

representation of the hundreds of microclimates in the PG&E Service Area. PG&E's improved SOPP model is a critical element of PG&E's Power Safety Power Shutoff Program.

PG&E also used EPIC 1.05 to develop its own internal fire danger rating system after CAL FIRE stopped providing PG&E with daily fire danger ratings in December 2014. Initially, PG&E leveraged data provided by the USFS Wildland Fire Assessment System ("WFAS"), which is based on the National Fire Danger Rating System ("NFDRS"), to develop daily fire danger forecasts to replace the daily CAL FIRE ratings. However, that information had a number of limitations, including that it was not at a sufficiently high resolution; was based on data from reporting weather stations that were often far apart, especially given California's microclimates and variations in terrain; and the high/extreme fire ratings in the data were not tied to historical fire occurrence. In addition, the WFAS system only provided a single day-ahead forecast and was based on a single hourly afternoon daily fire rating, rather than taking into consideration hourly variations.

In early 2015, PG&E developed a Fire Danger Rating System specific to PG&E's service territory as part of the EPIC project, designed to address the gaps in other fire danger ratings systems by using outputs from POMMS to provide weather predictions at higher temporal (hourly) and spatial (3 km) resolutions with a forecast lead-time of 72 hours (3 days). The EPIC 1.05 Project Team conducted a review of existing and publicly available fire danger ratings systems and consulted with multiple partners¹⁴⁶ to further refine PG&E's fire danger rating methodology, given the need to evaluate fire danger ratings at a more granular timescale

¹⁴⁶ Key project partners, including CAL FIRE, the United States Forest Service (USFS), the National Weather Service, SDG&E, San Jose State University Fire Weather Research Lab, the Bureau of Land Management, Cal OES, and PG&E's Wildfire Risk Council, provided valuable guidance and consulting and participated in at least one of two external sharing and coordination meetings.

and spatial resolution. A PG&E meteorologist attended and successfully completed S-491 training (Intermediate National Fire Danger Rating System) offered by the National Wildfire Coordinating Group. This is the same course taken by state and federal agencies to learn how to apply NFDRS correctly.

Also in 2015, a more granular fire danger rating methodology was developed, tested, and deployed to provide daily fire danger ratings for PG&E's service territory. The result was a system utilizing outputs from the PG&E POMMS, NFDRS, and the Nelson Dead Fuel moisture model that allowed PG&E to forecast the fire danger rating from low to extreme on an hourly basis for each FIA, consistent with how CAL FIRE, the USFS, Bureau of Land Management, and Bureau of Indian Affairs evaluate fire danger.

These improved fire danger ratings were provided to PG&E personnel in a daily email with the PG&E fire index rating map and a text description of the fire index areas with "Very High" and "Extreme" fire danger for each FIA. As stated previously, PG&E's internal fire danger ratings were used to implement the Fire Danger Precautions and Restrictions in Hazardous Fire Areas, set forth in Utility Operations Standard TD-1464S (the successor to Standard S1464).

PG&E is producing its EPIC 1.05 Final Report, dated December 12, 2016, at PGE-2017Wildfires-OII-0000005714-761.

iii. PG&E's Development of a Wildfire Spread and Consequences Model

In 2016, following the 2015 Butte Fire, PG&E undertook a wildfire risk benchmarking trip to Australia, where it studied Australian utilities' use of computational wildfire spread modeling—as compared to the weighted GIS input models used in California—to inform the prioritization of work and risk mitigation programs. As a result, and in parallel with the ongoing CPUC fire mapping process, PG&E engaged Reax Engineering in June 2016 to

computationally model wildfire spread in the immediate proximity to PG&E's overhead transmission and distribution facilities to help identify the risk of wildfire spreading beyond initial containment lines (*i.e.*, the risk of a catastrophic wildfire). The result of this work was the initial Reax Engineering wildfire spread and consequences model (the “**Reax Wildfire Spread Model**”).

The 2016 Reax Wildfire Spread Model utilized a Monte Carlo analysis which included the following inputs:

1. Topography layers at a resolution of 30 meters which include elevation, slope, and aspect;
2. Fuel layers at a resolution of 30 meters including surface fuel model, canopy height, canopy cover, canopy base height, and canopy bulk density;
3. Wind and weather input at a resolution of 2 km including modelled wind speed, temperature, relative humidity, and atmospheric stability; and
4. Road density and proximity of fire stations and air attack bases to evaluate firefighting response times.

The Reax Wildfire Spread Model evaluated these inputs to understand the relative probability of a fire escaping initial suppression efforts and the resulting impact on structures and communities, natural resources (*e.g.*, timber), and critical infrastructure. This model was used by PG&E to support its contribution to the Fire Safety OIR fire risk mapping efforts and later formed the basis of the Wildfire Risk Model described below.

PG&E is producing the Reax Wildfire Spread Model at PGE-2017Wildfires-OIL-0000006428.

iv. PG&E's Wildfire Risk Assessment

PG&E continued to develop its internal wildfire risk assessment capabilities in 2017. In preparation for its 2017 RAMP filing, PG&E engaged a consulting firm to conduct an analysis of historical ignition risk drivers and assess mitigation activities against those drivers. As part of this analysis, PG&E ignition data from 2015 through 2016 was evaluated to categorize the ignition risk drivers and understand the relative frequency of those drivers to assess the potential effectiveness percentage of mitigation activity options.

PG&E also completed a quantitative risk assessment that evaluated the increased risk of wildfire, in part due to climate change and drought. The assessment used a combination of PG&E-specific data, industry data, and subject matter expert input to gain a better understanding of the risk drivers for wildfire. As with other risks identified in the RAMP filing, the various consequences of wildfire risk were evaluated using a Multi Attribute Risk Scoring (“**MARS**”) model and a total risk score was generated.

The assessment noted that “[t]he combined effects of extreme weather and climate change” impact the risk of wildfires and that “[e]nvironmental variations, such as drought conditions or periods of wet weather that drive additional vegetation growth and wildfire fuel increases, can influence both the likelihood and severity of a wildfire event.”¹⁴⁷ PG&E used this risk assessment to propose a number of additional wildfire mitigation programs to combat the increased threat of wildfires through 2022. PG&E proposed to focus these mitigation efforts in the elevated and extreme high fire-threat areas identified in draft Fire Map 2 (which was adopted by the Commission in early 2018 as the HFTD Map) being considered as part of the CPUC’s Fire Safety OIR. These additional mitigation measures included:

¹⁴⁷ PG&E’s 2017 RAMP Filing, at 11-1 and 11-5.

- Continuing the expansion of the Wildfire Reclosing Disable Program in elevated and extreme areas by installing SCADA capabilities on more than 100 reclosers per year from 2020 to 2022 in draft CPUC Fire Map 2 extreme areas.
- Replacement of additional non-exempt surge arresters with exempt surge arresters certified by CAL FIRE as low fire risk, resulting in the replacement of approximately 90 percent of all exempt surge arresters in the distribution system by 2022.
- Continuing fuel reduction and power line corridor management, which reduces vegetation near targeted portions of overhead distribution lines. This mitigation targets approximately 3,600 miles of line work for over a five-year period (2018-2022), representing all of the draft CPUC Fire Map 2 elevated and extreme areas.
- Continuing overhang clearing, which involves clearing vegetation above the overhead electrical distribution lines to reduce the chances of a branch falling on the line. This mitigation includes approximately 24,000 miles of overhang clearing over a five-year period (2018-2022), representing all of the draft CPUC Fire Map 2 elevated and extreme areas.
- Including an additional 190 circuit miles of targeted conductor replacement per year from 2020 to 2022, replacing select spans of overhead conductor in high-risk wildfire areas with hybrid tree wire (or covered conductor).

v. PG&E's Wildfire Risk Modelling

Following the October 2017 North Bay Fires and the CPUC's adoption of the HFTD Map in January 2018, which identified large areas of PG&E's service territory as Tier 2 ("elevated risk") or Tier 3 ("extreme risk") areas, PG&E leveraged the RAMP analysis and lessons learned from the 2017 wildfire season to update the Wildfire Chapter of their 2020

General Rate Case (“**GRC**”). As a component of the GRC, PG&E engaged an external consultant to update the assessment of the wildfire risk drivers using updated data, including data from 2017. PG&E is producing a September 2017 presentation to PG&E senior leadership, describing the outcome of this analysis of risk drivers, at PGE-2017Wildfires-OII-0000006307.

Additionally, PG&E engaged the same external consultant to develop relative risk rankings for PG&E’s circuits in HFTD areas to help prioritize its updated vegetation management procedures and its planned system hardening efforts that were described in its 2020 GRC filing.

At the end of 2018, PG&E expanded this wildfire risk modelling to include transmission assets with a particular focus on asset failure drivers. This led to the development of the WSIP. The WSIP was designed to inspect all distribution and transmission assets within the HFTD .

Also at the end of 2018, PG&E engaged the same external consultants to develop a risk prioritization model at the circuit level for distribution and transmission assets. This analysis assessed the wildfire risk across three criteria:

- Likelihood of failure: Regression models were used to identify which asset or wildfire risk driver characteristics were more related to the probability of an ignition.
- Spread and consequence: An updated version of the Reax Wildfire Spread Model (described further in Section B.iii. above).
- Egress: An analysis of the percentage of population of census-defined communities in HFTD areas against the road density by road type was

conducted to understand the ease of access for areas near PG&E assets in HFTD areas.

Each circuit had a score calculated for each criteria and those scores were multiplied to give an overall score, which was used to prioritize enhanced vegetation management and system hardening mitigation measures across HFTD areas for transmission and distribution.

(1) Likelihood of Failure Calculation

The likelihood of failure was determined using a regression analysis based upon a set of independent variables applied to each circuit for Enhanced Vegetation Management, Transmission Assets, Distribution Assets, and at the protection zone level for System Hardening in HFTD areas. The independent variables differed for each regression model based on the variables that apply to the mitigation being prioritized. They included the age and condition of individual conductors, environmental factors such as exposure to wind, and vegetation factors such as the number of vegetation related outages on that section of the circuit. This analysis produced a likelihood of failure percentage for each component of the circuit or protection zone within HFTD areas.

(2) Egress Model

The egress model was used to calculate an egress score for the potential ease of accessing or exiting a community during a wildfire. This egress score was calculated for each census location in California within a HFTD area by assessing the percentage of HFTD population against the road density using the total miles of road in each location and the type of road (*i.e.*, highways, country roads, or residential roads).

PG&E is producing the output of this modelling exercise at PGE-2017Wildfires-OII-0000006339 and documents explaining the modelling process, at PGE-2017Wildfires-OII-0000006279. PG&E is also producing the egress model at PGE-2017Wildfires-OII-0000006278 and supporting documents at PGE-2017Wildfires-OII-0000006337.

vi. Development of Real-Time Fire Danger Modeling and Extreme-Plus Fire Danger Ratings

Also in 2018, PG&E's Meteorology group, with guidance from fire experts from SDG&E, the USFS, and SJSU's Fire Weather Research Lab, developed the Fire Potential Index, or FPI, to create a system that could be optimized to forecast and track fire danger in real-time. The FPI combines fire weather data (temperature, humidity, and wind), live and dead fuel moisture values, and satellite data to rank fire danger on a floating-point scale from 1 (lowest) to 6 (highest), allowing for a more detailed determination of fire danger at the extreme end of the fire danger scale. Threshold values for each rating classification are determined through an evaluation of conditions during historical fire incidents combined with typical seasonal values.

Not only does the FPI provide the fire danger ratings for more precise geographic areas (the 91 FIAs), but the FPI can provide hourly fire danger ratings that can be modeled/forecasted and then tracked in real-time. In addition, the FPI can be used in combination with PG&E's SOPP model to better distinguish between typical Extreme fire danger observed during hot and dry conditions, and Extreme-Plus fire danger, which occurs where there is a confluence of strong, dry, outage-producing winds, and extremely dry fuels that may lead to devastating wildfires.

The ultimate goal of PG&E's fire danger rating system is to further reduce the risk of fire ignitions caused by utility operations. When fire danger ratings are very high or above in any fire danger rating area, a number of mitigating measures may go into effect,

including disabling automatic reclosing, limiting any type of hot work, and prohibiting off-road travel. The evaluation of real-time and forecast conditions in PG&E's FPI and SOPP model are also key to determining when severe weather and fire danger conditions may require a PSPS in the interest of public safety.

A more detailed description of PG&E's Fire Potential Index is included as Attachment A to PG&E's Amended WSP, which PG&E is producing at PGE-2017Wildfires-OII-0000000014.

C. Whether Fire Origin Locations Fall Within a Local Area Recognized as Susceptible to Wildfire¹⁴⁸

As the below table demonstrates, none of the October 2017 North Bay Fires investigated by the SED started in a location recognized by PG&E's own internal fire maps as having a high wildfire risk in October of 2017.

| Fire | UWF (2009) | OWF (2013) | CIP/REAX Map (2012)¹⁴⁹ | Fire Map 1 (2015)¹⁵⁰ | State Responsibility Area |
|------------------|-----------------------|-----------------------|--|--|--|
| Adobe | No | No | No | No | Yes |
| Atlas | No | No | No | No | Yes |
| Cascade | No | No | No | No | Yes |
| Cherokee | No | No | No | No | Yes |
| La Porte | No | No | No | No | Yes |
| Norrbom | No | No | No | No | Yes |
| Nuns | No | No | No | No | Yes |
| Oakmont | No | No | No | No | Yes |
| Partrick | No | No | No | No | Yes |
| Pocket | No | No | No | No | Yes |
| Point | No | No | No | No | Yes |
| Potter Valley | No | No | No | No | No |
| Sulphur | No | No | No | No | No |
| Tubbs | No | No | No | No | Yes |

¹⁴⁸ In this section, PG&E is responding to Section III.G.4 of Attachment B.

¹⁴⁹ Based on Threat 3 and Threat 4 areas on the CIP Reax Map.

¹⁵⁰ Based on top 10% fire risk areas in Fire Map 1.

| | | | | | |
|---------|----|----|----|----|-----|
| Youngs | No | No | No | No | Yes |
| 37 Fire | No | No | No | No | Yes |

EXHIBIT 2

A LIST OF PERSONNEL, INCLUDING FULL NAMES,
BUSINESS ADDRESSES, AND TITLES PROVIDED IN THE
ATTACHMENT B REPORT

Herein is a listing of PG&E personnel who are knowledgeable about the information provided in PG&E's Report in Response to Attachment B of the Commission's Order Instituting Investigation and Order to Show Cause ("Report"), including the employees' full names, titles, and business addresses.

1. The following PG&E employee is knowledgeable about the information provided in the Vegetation Management section of the Report:

- Peter Dominguez, Principal, Vegetation Management, 245 Market Street, San Francisco, CA, 94105

2. The following PG&E employees are knowledgeable about the information provided in the Reclosers section of the Report:

- Bob McAndrew, Manager, Electric Distribution Planning, 12840 Bill Clark Way, Auburn, California, 95602
- MaryAnn Dillahunty, Senior Manager, Distribution Control Center, 12840 Bill Clark Way, Auburn, California, 95602

3. The following PG&E employees are knowledgeable about the information provided in the Proactive De-Energization section of the Report:

- Shawn Holder, Manager, Emergency Management & Public Safety, 245 Market Street, San Francisco, CA 94105
- Scott Strenfel, Meteorologist, Principal, 3400 Crow Canyon Road, San Ramon, CA 94583

4. The following PG&E employee is knowledgeable about the information provided in the Recordkeeping section of the Report:

- Heather Duncan, Senior Manager, Compliance Support, 4040 West Lane, Stockton, CA 95204
- Stacie Doyle, Supervisor Maintenance & Compliance, Transmission Line Department, 5221 Quinn Road, Vacaville, CA 95688

5. The following PG&E employees are knowledgeable about the information provided in the Handling and Retention of Evidence section of the Report:
- Renee Records, Manager, Claims, 6111 Bollinger Canyon Rd, San Ramon, CA, 94583
 - Charles Filmer, Electric Compliance Specialist, Expert, 202 Cousteau Place, Davis, CA, 95618
6. The following PG&E employees are knowledgeable about the information provided in the Conductor-to-Conductor Contact section of the Report:
- Heather Duncan, Senior Manager, Compliance Support, 4040 West Lane, Stockton, CA 95204
 - Rudy Movafagh, Senior Manager, Distribution Standards Engineer & Asset Strategy, 345 Market Street, San Francisco, CA 94105
 - Michael Best, Electric Program Manager, Expert, 9575 East Victor Road, Lodi, CA 95240
 - Manuel Camara, Manager, Electric Distribution Reliability, 1850 Gateway Blvd., Concord, CA 92520
7. The following PG&E employees are knowledgeable about the information provided in the Other Risks section of the Report:
- Tyson McCartney, Wildfire Risk Analyst, Principal, 245 Market Street, San Francisco, CA 94015
 - Christopher Benjamin, Director, Corporate Sustainability, 77 Beale Street, San Francisco, CA 94105
 - Shawn Holder, Manager, Emergency Management & Public Safety, 245 Market Street, San Francisco, CA 94015
 - Scott Strenfel, Meteorologist, Principal, 3400 Crow Canyon Road, San Ramon, CA 94583

EXHIBIT 3

INDEX OF THE DOCUMENTS PRODUCED AT BATES
NUMBERS PGE-2017Wildfires-OII-0000000001 to PGE-
2017Wildfires-OII-0000006600

Herein is a listing of the documents PG&E is producing in connection to its Report in Response to Attachment B of the Commission's Order Instituting Investigation and Order to Show Cause ("Report"). These documents are organized by Section and Topic Requirement, as outlined in the Commission's OII Attachment B, pages Attachment B1–B7, and are identified by Bates Number.

| SECTION II: VEGETATION MANAGEMENT |
|---|
| Requirement III.A.1 |
| PGE-2017Wildfires-OII-0000002862 – PGE-2017Wildfires-OII-0000002872 |
| Requirement III.A.2 |
| PGE-2017Wildfires-OII-0000002947 – PGE-2017Wildfires-OII-0000002963 |
| PGE-2017Wildfires-OII-0000002972 – PGE-2017Wildfires-OII-0000002974 |
| PGE-2017Wildfires-OII-0000003004 – PGE-2017Wildfires-OII-0000003024 |
| PGE-2017Wildfires-OII-0000003047 – PGE-2017Wildfires-OII-0000003071 |
| PGE-2017Wildfires-OII-0000003082 – PGE-2017Wildfires-OII-0000003120 |
| PGE-2017Wildfires-OII-0000003166 – PGE-2017Wildfires-OII-0000003251 |
| PGE-2017Wildfires-OII-0000003316 – PGE-2017Wildfires-OII-0000003362 |
| PGE-2017Wildfires-OII-0000003373 – PGE-2017Wildfires-OII-0000003387 |
| PGE-2017Wildfires-OII-0000003450 – PGE-2017Wildfires-OII-0000003459 |
| PGE-2017Wildfires-OII-0000003786 – PGE-2017Wildfires-OII-0000003796 |
| PGE-2017Wildfires-OII-0000003808 – PGE-2017Wildfires-OII-0000003816 |
| PGE-2017Wildfires-OII-0000003823 |
| PGE-2017Wildfires-OII-0000003834 |
| PGE-2017Wildfires-OII-0000003856 – PGE-2017Wildfires-OII-0000003857 |
| PGE-2017Wildfires-OII-0000003912 – PGE-2017Wildfires-OII-0000003936 |
| PGE-2017Wildfires-OII-0000003956 – PGE-2017Wildfires-OII-0000003957 |
| PGE-2017Wildfires-OII-0000004029 – PGE-2017Wildfires-OII-0000004032 |
| PGE-2017Wildfires-OII-0000004034 – PGE-2017Wildfires-OII-0000004057 |
| PGE-2017Wildfires-OII-0000004078 – PGE-2017Wildfires-OII-0000004119 |
| PGE-2017Wildfires-OII-0000004127 – PGE-2017Wildfires-OII-0000004148 |
| PGE-2017Wildfires-OII-0000004191 – PGE-2017Wildfires-OII-0000004199 |
| PGE-2017Wildfires-OII-0000004203 – PGE-2017Wildfires-OII-0000004204 |
| PGE-2017Wildfires-OII-0000004266 – PGE-2017Wildfires-OII-0000004279 |
| PGE-2017Wildfires-OII-0000004292 – PGE-2017Wildfires-OII-0000004296 |
| Requirement III.A.3 |
| PGE-2017Wildfires-OII-0000002924 – PGE-2017Wildfires-OII-0000002946 |
| PGE-2017Wildfires-OII-0000003082 – PGE-2017Wildfires-OII-0000003090 |
| PGE-2017Wildfires-OII-0000003166 – PGE-2017Wildfires-OII-0000003196 |
| Requirement III.A.4 |
| PGE-2017Wildfires-OII-0000003363 – PGE-2017Wildfires-OII-0000003372 |

| |
|---|
| PGE-2017Wildfires-OII-0000003797 |
| PGE-2017Wildfires-OII-0000003858 – PGE-2017Wildfires-OII-0000003867 |
| PGE-2017Wildfires-OII-0000004125 – PGE-2017Wildfires-OII-0000004126 |
| PGE-2017Wildfires-OII-0000004254 – PGE-2017Wildfires-OII-0000004265 |

| |
|---|
| Requirement III.A.6 |
| PGE-2017Wildfires-OII-0000002873 – PGE-2017Wildfires-OII-0000005028 |
| PGE-2017Wildfires-OII-0000005031 – PGE-2017Wildfires-OII-0000005312 |
| PGE-2017Wildfires-OII-0000006569 – PGE-2017Wildfires-OII-0000006600 |
| Requirement III.A. Additional Documents |
| PGE-2017Wildfires-OII-0000004317 – PGE-2017Wildfires-OII-0000004321 |
| PGE-2017Wildfires-OII-0000005777 – PGE-2017Wildfires-OII-0000005783 |
| SECTION III: RECLOSERS |
| Requirement III.B.3 |
| PGE-2017Wildfires-OII-0000005870 – PGE-2017Wildfires-OII-0000005879 |
| Requirement III.B.4 |
| PGE-2017Wildfires-OII-0000005883 – PGE-2017Wildfires-OII-0000005936 |
| Requirement III.B.5 |
| PGE-2017Wildfires-OII-0000005848 – PGE-2017Wildfires-OII-0000005869 |
| PGE-2017Wildfires-OII-0000005880 – PGE-2017Wildfires-OII-0000005882 |
| PGE-2017Wildfires-OII-0000005937 – PGE-2017Wildfires-OII-0000005948 |
| PGE-2017Wildfires-OII-0000006503 – PGE-2017Wildfires-OII-0000006557 |
| SECTION IV: PROACTIVE DE-ENERGIZATION |
| Requirement III.C.1 |
| PGE-2017Wildfires-OII-0000005317 – PGE-2017Wildfires-OII-0000005336 |
| PGE-2017Wildfires-OII-0000005340 – PGE-2017Wildfires-OII-0000005367 |
| PGE-2017Wildfires-OII-0000005640 – PGE-2017Wildfires-OII-0000005660 |
| Requirement III.C.6 |
| PGE-2017Wildfires-OII-0000000014 – PGE-2017Wildfires-OII-0000000291 |
| PGE-2017Wildfires-OII-0000005313 – PGE-2017Wildfires-OII-0000005316 |
| PGE-2017Wildfires-OII-0000005368 – PGE-2017Wildfires-OII-0000005639 |
| SECTION V: RECORDKEEPING |
| Requirement III.D. Additional Documents |
| PGE-2017Wildfires-OII-0000000292 – PGE-2017Wildfires-OII-0000000861 |
| PGE-2017Wildfires-OII-0000001078 – PGE-2017Wildfires-OII-0000001396 |
| PGE-2017Wildfires-OII-0000005784 – PGE-2017Wildfires-OII-0000005847 |
| PGE-2017Wildfires-OII-0000006558 – PGE-2017Wildfires-OII-0000006567 |
| SECTION VI: HANDLING AND RETENTION OF EVIDENCE |
| Requirement III.E. Additional Documents |
| PGE-2017Wildfires-OII-0000000001 – PGE-2017Wildfires-OII-0000000013 |
| SECTION VII: CONDUCTOR-TO-CONDUCTOR CONTACT |
| Requirement III.F.1 |
| PGE-2017Wildfires-OII-0000001938 |

| |
|---|
| PGE-2017Wildfires-OII-0000005949 |
| Requirement III.F. Additional Documents |
| PGE-2017Wildfires-OII-0000000014 – PGE-2017Wildfires-OII-0000000192 |
| PGE-2017Wildfires-OII-0000000292 – PGE-2017Wildfires-OII-0000000861 |
| PGE-2017Wildfires-OII-0000001078 – PGE-2017Wildfires-OII-0000001937 |
| Requirement III.F. Additional Documents (continued) |
| PGE-2017Wildfires-OII-0000001939 – PGE-2017Wildfires-OII-0000002409 |
| PGE-2017Wildfires-OII-0000002446 – PGE-2017Wildfires-OII-0000002686 |
| PGE-2017Wildfires-OII-0000005784 – PGE-2017Wildfires-OII-0000005847 |
| SECTION VIII: OTHER RISKS |
| Requirement III.G.1 |
| PGE-2017Wildfires-OII-0000002687 – PGE-2017Wildfires-OII-0000002861 |
| PGE-2017Wildfires-OII-0000005641 – PGE-2017Wildfires-OII-0000005658 |
| PGE-2017Wildfires-OII-0000006307 – PGE-2017Wildfires-OII-0000006336 |
| PGE-2017Wildfires-OII-0000006340 – PGE-2017Wildfires-OII-0000006467 |
| Requirement III.G.2 |
| PGE-2017Wildfires-OII-0000006278 – PGE-2017Wildfires-OII-0000006427 |
| Requirement III.G.3 |
| PGE-2017Wildfires-OII-0000000014 – PGE-2017Wildfires-OII-0000000192 |
| PGE-2017Wildfires-OII-0000005659 – PGE-2017Wildfires-OII-0000005776 |
| PGE-2017Wildfires-OII-0000005950 – PGE-2017Wildfires-OII-0000006502 |
| Requirement III.G.5 |
| PGE-2017Wildfires-OII-0000000014 – PGE-2017Wildfires-OII-0000000192 |
| PGE-2017Wildfires-OII-0000005950 – PGE-2017Wildfires-OII-0000006277 |
| PGE-2017Wildfires-OII-0000006470 – PGE-2017Wildfires-OII-0000006480 |

EXHIBIT 4

BATES LABELED DOCUMENTS

*(CONFIDENTIAL VERSION OF BATES LABELED DOCUMENTS
HAVE BEEN EXCLUDED FROM THE PUBLIC VERSION BUT FILED
WITH THE COMMISSION'S DOCKET OFFICE.)*

Exhibit 72

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to
Implement Electric Utility Wildfire
Mitigation Plans Pursuant to Senate Bill
901 (2018).

Rulemaking 18-10-007
(Filed October 25, 2018)

**COMMENTS OF THE UTILITY REFORM NETWORK
ON THE REQUEST FOR SAFETY CERTIFICATION BY
PACIFIC GAS AND ELECTRIC COMPANY &**



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August 12, 2020

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Pursuant to the June 25, 2020 Letter from Wildfire Safety Division (WSD) Director Caroline Thomas Jacobs (June 25, 2020 Letter), The Utility Reform Network (TURN) submits these comments on the request for safety certification submitted by Pacific Gas and Electric Company (PG&E). PG&E submitted its request on July 29, 2020. The June 25, 2020 Letter provides that comments shall be submitted within 14 days of a utility's submission or within 14 days of that Letter, whichever is later. Accordingly, these comments are timely submitted.

1. INTRODUCTION AND SUMMARY

The determination of whether a utility warrants a safety certification has significant consequences. Under Public Utilities Code Section 451.1(c),¹ a safety certification entitles a utility to a relaxed burden of proof in demonstrating the reasonableness of costs resulting from a wildfire. In addition, under Section 3292(h), whether or not a utility has a safety certification can affect how much it must reimburse the Wildfire Insurance Fund for wildfire claims costs. Thus, the safety certification decision has potentially multi-billion dollar financial consequences for both utilities and ratepayers. For this reason, ensuring that the safety certification is conferred only on utilities that meet high standards for safety is an important tool for meeting the State's goal of preventing catastrophic wildfires and other safety failures.

In these comments, TURN urges WSD not to approve PG&E's request. PG&E has failed to show, as required by Section 8389((e)(2), that it "in good standing." Less than two months before it filed its request, PG&E was convicted on 85 felony counts relating to the tragic Camp Fire. As explained in the Butte County District Attorney Report explaining the basis for those convictions, "[t]he facts establish a callous disregard for the safety and property of the citizens of Butte County."² It is hard to imagine a more definitive determination that PG&E has a broken safety culture and is the exact opposite of a utility that can be found to be in good standing as a safe operator. PG&E's five-page letter justifying its request does not even address these recent convictions. Instead, PG&E improperly relies on the same stale NorthStar "update" document from March 2019 that on which it based last

¹ All statutory references are to the Public Utilities Code unless otherwise indicated.

² Butte County District Attorney, *Camp Fire Public Report: A Summary of the Camp Fire Investigation* (DA Report), made public on June 16, 2020 (attached to these comments as Exhibit A), p. 88 (emphasis in original).

year's request, instead of a current, annual safety culture assessment contemplated by AB 1054. Lacking such a current assessment, PG&E fails to provide the information required by WSD in its May 6, 2020 letter to PG&E, which would have plainly demonstrated that PG&E is most definitely not in good standing by any measure. If the good standing requirement has any meaning, which it must under basic principles of statutory construction, PG&E must be denied a certification that it is a safe utility.

These comments also point out that, even if WSD were somehow inclined to find PG&E in good standing, it should not be granted a safety certification until it has demonstrated full compliance with the requirements for wildfire mitigation plans (WMP), which at a minimum requires that PG&E have remedied its many Class A deficiencies and any other failures to comply with WMP requirements. In addition, however WSD disposes of PG&E's executive compensation requests for 2020, it should make clear that no further deviations from the requirements of Section 8389(e)(4) and (6) will be tolerated for 2021. TURN concludes by recommending that, as it did with the WMPs, WSD issue draft resolutions that are voted on the CPUC commissioners before they are considered final.

2. PG&E DOES NOT SATISFY THE 'GOOD STANDING' REQUIREMENT

2.1. & PG&E May Not Rely Upon the Same March 2019 Safety Culture Assessment It Used for Its 2019 Safety Certification

AB 1054 mandates that, before an electric utility can be granted a safety certification, it must satisfy each of seven enumerated provisions under Section 8389(e), including subsection (2) which requires:

(2) The electrical corporation is in good standing, which can be satisfied by the electrical corporation having agreed to implement the findings of its most recent safety culture assessment, if applicable.

The phrase "most recent safety culture assessment" refers to the "*annual* safety culture assessments" (emphasis added) to be performed by WSD, which are also mandated by AB 1054 in Section 8389(d)(4), just a few lines before Section 8389(e)(2).³ In legislation focused on reducing the risks and

³ Section 8389(d) requires that the Commission approve the process for WSD's annual safety culture assessments by December 1, 2020. No such process has been approved and thus WSD safety culture assessments have not yet been performed. The Legislature contemplated this possibility by including the phrase "if applicable" in Section 8389(e)(2). As discussed below, WSD's May 6, 2020 letters to the electric utilities provided direction for the information that must be submitted absent the required *current* safety culture assessment.

consequences of catastrophic wildfires, it was critical that there be annual safety culture assessments and that such assessments be performed by WSD, the division charged with getting the utilities to improve their wildfire safety efforts.

In its virtually identical May 6, 2020 letters to PG&E and the other utilities, consistent with Section 8389(e)(2), WSD addressed the showing that utilities must make to satisfy subsection (2):

To satisfy the requirements of §8389(e)(2), if the electrical corporation has an approved safety culture assessment, the electrical corporation shall submit documentation to show that it is implementing the findings of the safety culture assessment. Absent a *current* safety culture assessment, the electrical corporation shall submit the following documentation:

- a. Safety policies, including employee and contractor safety, gas pipeline and electrical safety.
- b. Number of reported ignitions to date in 2020 pursuant to CPUC Decision 14-12-015.
- c. Number of fatalities and/or structures damaged and/or destroyed by wildfires ignited by utility infrastructure and/or equipment.
- d. Worker and contractor fatalities and incidents since issuance of the previous safety certification.
- e. CPUC investigations and court actions, if any, related to safety violations of the electrical corporation, including ongoing and closed investigations; and,
- f. Responses to any Wildfire Safety Division requests for remedies as a result of compliance findings from evaluation of the 2019 and 2020 Wildfire Mitigation Plans.⁴

WSD's use of the word "current" in its May 6, 2020 Letter was important and consistent with the requirements of AB 1054.

Here, PG&E is improperly attempting to qualify for its safety certification based on claimed implementation of the recommendations in NorthStar's March 29, 2019 "update" to NorthStar's more complete May 8, 2017 report. This March 2019 update is the same document that PG&E relied upon for its 2019 safety certification. PG&E's attempt to capitalize upon the same stale NorthStar update that it used for last year's request defeats the legislative goal of requiring utilities to demonstrate that they are

⁴ WSD's May 6, 2020 Letter to PG&E re WSD Guidance on 2020 Safety Certification Requests Pursuant to Public Utilities Code §8389(f)(2) (May 6, 2020 Letter) (emphasis added).

in compliance with a new, annual safety culture assessment that reflects the current safety culture of the utility. Moreover, NorthStar's March 2019 update was by its terms quite limited in scope. NorthStar only reviewed PG&E's implementation of six of NorthStar's over 60 recommendations to PG&E in NorthStar's 2017 report. The March 2019 update makes clear: "In accordance with SED's direction, NorthStar did not review the status of all recommendations or perform a detailed follow-up review of PG&E's safety culture."⁵ Furthermore, NorthStar's March 2019 Update was not conducted by WSD, as required by Section 8389(d)(4) and thus was not necessarily undertaken from the perspective of assessing PG&E's safety culture with respect to the risk of catastrophic wildfires.

In sum, AB 1054 does not allow PG&E to rely on the same stale, narrow and incomplete March 2019 NorthStar update that PG&E used for its safety certification request last year.⁶ As discussed in the following sections, PG&E's felony convictions and other developments since that March 2019 update have only magnified the serious problems with PG&E's safety culture that were not considered in that March 2019 document. Absent the current safety culture assessment that AB 1054 requires, PG&E should have submitted the extensive documentation that WSD required for utilities that lack an up-to-date safety culture assessment. By failing to do so, PG&E has failed to meet Section 8389(e)(2)'s good standing requirement, and its requested safety certification must be denied.

2.2. & PG&E's Felony Convictions Since Its Previous Safety Certification Underscore the Serious and Persistent Safety Culture Problems that PG&E Fails to Address in its Request

On June 18, 2020, PG&E was convicted of 85 felony counts related to the 2018 Camp Fire. The crimes that PG&E committed are as heinous as have ever been committed by a public utility in this country. They reflect a broken safety culture at PG&E. Yet, PG&E's five-page letter to the WSD attempting to make the case for its requested safety certification does not even mention these felony convictions, let alone make the case for why WSD and the public should be convinced that PG&E has corrected the safety culture failures that gave rise to PG&E's crimes. It should not even be necessary to

⁵ NorthStar Consulting Group, First Update to Assessment of PG&E's Safety Culture, March 29, 2019, p. I-1 (emphasis added).

⁶ TURN notes that PG&E's August 2, 2019 safety certification request was approved by the CPUC's Executive Director on August 23, 2019, without providing interested stakeholders notice and an opportunity to comment on PG&E's request.

make the following point: PG&E simply cannot be certified as a safe utility when it has been convicted of these serious crimes and has not even attempted to explain why WSD and the public should be convinced that such crimes can never happen again.

PG&E's criminal behavior is documented in detail in the Butte County District Attorney's *Camp Fire Public Report: A Summary of the Camp Fire Investigation* (DA Report), made public on June 16, 2020 (attached to these comments as Exhibit A). Before passing judgment on PG&E's request, WSD needs to read the DA Report in detail, with a particular focus on the Section XXII Conclusion discussion. In these comments, TURN can only highlight some of the most salient points.

First, PG&E's conviction of unlawfully causing a fire (Penal Code §452(c)) means that PG&E has been convicted of acting "recklessly." A corporation acts recklessly when:

- a. *It is aware that its actions present a substantial and unjustifiable risk of causing a fire.*
- b. *It ignores that risk.*
- c. Ignoring the risk is *a gross deviation from what a reasonable person would have done in the same situation.*⁷

Needless to say, a corporation that is aware that its actions pose an unjustifiable risk of causing a fire, yet ignores that risk, has a fundamental problem with its safety culture.

Second, PG&E's conviction of 84 counts of involuntary manslaughter (Penal Code §192(b)) means that PG&E has been found "criminally negligent." A "corporation acts with criminal negligence when the way it acts is so different from how an ordinarily careful person would act in the same situation that *its act amounts to disregard for human life or indifference to the consequences of that act.*"⁸ Again, it is beyond dispute that a company that evidences a disregard for human life or indifference to the consequences of its reckless and dangerous actions has an undeniably abhorrent safety culture.

The DA Report summarizes the import of these convictions: "**The facts establish a callous disregard for the safety and property of the citizens of Butte County.**"⁹

⁷ DA Report, p. 80 (emphasis added).

⁸ DA Report, p. 81 (emphasis added).

⁹ DA Report, p. 88 (emphasis in original).

Third, the DA report directly speaks to PG&E's failed safety culture, referencing PG&E's "corporate culture of elevating profits over safety by taking shortcuts in the safe delivery of an extremely dangerous product – high voltage electricity . . ."¹⁰ The DA report also pointed out that, the failed "C" hook that caused the fire had wear that should have been visible for at least 50 years and that, even though scores of PG&E employees should have been in a position to observe the wear, none of the employees ever documented it. The DA Report attributes such outcomes to the company's standard practice of decision-making "by committee," which "virtually eliminat[es] individual responsibility. The Report further explains that:

A "silo mentality" also pervaded the company in which departments and management groups did not share information, goals, tools, priorities and processes with each other. (E.g. The PG&E Tower Division took responsibility for maintenance of the steel tower structures. The PG&E Line Division took responsibility for the maintenance of the power lines. The "C" hooks seemed to fall between their two responsibilities – i.e., neither took responsibility for the hooks, assuming the other division was responsible, which left the hooks as orphan equipment.)¹¹

Again, these are serious and entrenched safety culture failures that need to be addressed and resolved before PG&E can be considered worthy of a safety certificate.

Indeed, the safety culture problems are so entrenched that they have persisted since the time of the San Bruno disaster. The DA Report laments that, eight years after the San Bruno explosion, notwithstanding the CPUC's efforts to reform PG&E after that calamity, the same lethal conduct recurred:

The felonies for which PG&E was convicted [after San Bruno] related to inspection policies, procedures and record keeping. Eight years later, as a result of similar reckless and criminal inspection policies, procedures and record keeping PG&E stands convicted of 84 counts of manslaughter.¹²

In light of the Camp Fire convictions and the abhorrent conduct and callous company culture on which those convictions were based, PG&E simply cannot be allowed to wear the mantle of a certified safe utility. Acceding to PG&E's request would be particularly egregious when, as noted, PG&E has

¹⁰ DA Report, p. 89. !

¹¹ DA Report p. 80. !

¹² DA Report, p. 89 (emphasis in original). !

not even attempted to convince WSD and the public that it has made the deep and pervasive changes necessary to render it incapable of committing such crimes again.

2.3. & Several Other Developments Since PG&E's Safety Certification Was Approved in 2019 Show That PG&E Should Not Be Allowed to Rely Upon the Stale March 2019 NorthStar Update

PG&E's criminal convictions and the accompanying DA Report, by themselves, clearly warrant rejection of PG&E's request. But there are additional troubling developments that show that the serious problems that caused the Camp Fire cannot be considered isolated in nature. These developments include:

- Cal Fire has determined that the October 2019 Kincade Fire that scorched 78,000 acres and destroyed 374 buildings was, like the Camp Fire, caused by PG&E transmission lines. Cal Fire has forwarded its investigative report to the Sonoma County District Attorney's office for potential criminal prosecution.
- Judge Alsup, presiding over PG&E's criminal probation resulting from the San Bruno felony convictions, has found it necessary to impose additional probation conditions on PG&E, relating to vegetation management inspections, improved condition assessment and recordkeeping for transmission tower components, and improved and verified transmission facility inspections.¹³ These additional conditions are the result of PG&E's continuing failure to operate a safe electric system. As Judge Alsup explained in an April 29, 2020 Order: "A fundamental concern in this criminal probation remains the fact that Pacific Gas & Electric Company, though the single largest privately-owned utility in America, cannot safely deliver power to California. This failure is upon us because for years, in order to enlarge dividends, bonuses, and political contributions, PG&E cheated on maintenance of its grid — to the point that the grid became unsafe to operate during our annual high winds, so unsafe that the grid itself failed and ignited many catastrophic wildfires. In the past three years alone, PG&E wildfires killed at least 108 and burned 22,049 structures. It will take years, now, for PG&E to catch up on maintenance so that

¹³ *Order Approving and Adopting Proposed Conditions of Probation*, United States v. PG&E, No. CR 14-00175, August 7, 2020.

the grid can safely supply power at all times. The [prior] conditions of probation herein have been aimed at requiring PG&E to do so. It's evident, however, that more is necessary.”¹⁴

- In the CPUC's decision regarding PG&E's bankruptcy plan of reorganization, the Commission found as “a cause for concern” that “PG&E seems reluctant to take ownership of its safety history and acknowledge its failings.”¹⁵ This finding is yet another indication of a failed safety culture. Without recognizing its past failures, PG&E will not be able to remedy them.
- In the CPUC Bankruptcy OII evidentiary hearings, PG&E top executive, William Johnson, seemed resigned to the fact that the company is not able to prevent its key facilities from breaking and causing catastrophic wildfires. With respect to the Kincade Fire, he testified that “sometimes things just break.”¹⁶ This is a jaw-dropping statement from the company's top leader that excuses mistakes and malfeasance instead of setting a clear expectation that the company will operate its hazardous electric facilities safely.

Again, each of these recent developments is dwarfed by the import of the Camp Fire criminal convictions and accompanying exhaustive DA Report. However, they underscore the fact that PG&E's safety culture remains demonstrably broken. PG&E's request offers absolutely no reason to believe that PG&E has fixed its deep and persistent safety problems. Under these circumstances, the WSD can only conclude that PG&E has failed to satisfy the Section 8389(e)(2) good standing requirement. Accordingly, PG&E requested safety certification must be rejected.

¹⁴ *Order Modifying Conditions of Probation*, United States v. PG&E, No. CR 14-00175, April 29, 2020, p. 1. !

¹⁵ D.20-05-053, p. 17. !

¹⁶ I.19-09-016, Hearing Transcript, Feb. 25, 2020, p. 125, line 20. !

3. PG&E'S SAFETY CERTIFICATION SHOULD NOT BE APPROVED UNTIL PG&E HAS SATISFIED THE CONDITIONS FOR APPROVAL OF ITS WILDFIRE MITIGATION PLAN, ESPECIALLY THE CLASS A DEFICIENCIES

The foregoing has established that PG&E has failed to satisfy the Section 8389(e)(2) good standing requirement. Because all seven of the Section 8389(e) provisions must be satisfied, this failure mandates denial of PG&E's request. However, in the event that WSD somehow finds that PG&E meets the good standing requirement, there is an additional basis for denying PG&E's request.

Section 8389(e)(1) requires an "approved" WMP. The Resolutions approving PG&E's 2020-2022 WMP made clear that those approvals were conditioned on the satisfaction of "deficiencies," which were categorized as Class A, Class B, or Class C, with Class A being the most serious.¹⁷ WSD-02 described Class A deficiencies as follows:

Class A deficiencies are of the highest concern and require an electrical corporation to develop and submit to the WSD, within 45 days of Commission ratification of the WMP Resolutions, a remedial compliance plan (RCP) to resolve the identified deficiency. An RCP must present all missing information and/or articulate the electrical corporation's plan, including proposed timeline, to bring the electrical corporation's plan into compliance.¹⁸

This discussion makes clear that, until Class A deficiencies have been remedied, the utility's WMP is not in compliance with applicable requirements and thus cannot be deemed an "approved" WMP under Section 8389(e)(1).

WSD-003 identifies the following Class A deficiencies for PG&E:

- PG&E-1 – PG&E groups initiatives into programs and does not provide granular initiative detail
- PG&E-3 – High incidence of conductor failure
- PG&E-8 – Annual risk ranking is quickly out of date
- PG&E-15 – It is unclear how PG&E classifies findings at the appropriate level
- PG&E-25 – Lack of details in PG&E's WMP on how to address personnel shortages
- PG&E-26 – Effectiveness of increased vegetation clearances
- PG&E-27 – Public safety partner coordination

¹⁷ WSD-02, p. 17. !

¹⁸ WSD-02, pp. 17-18 (emphasis added). !

Consistent with their classification as Class A deficiencies, these are serious problems – far more than the other two large utilities – that go to the heart of whether PG&E is entitled to a safety certification. For example, Deficiency 3 raises concerns that must be resolved about PG&E’s comparatively high incidence of conductor failure, which can lead to a catastrophic wildfire. Deficiency 15 calls into question whether inspection findings are being properly classified based on priority for remediation; an incorrect classification can lead to a result such as occurred in the Camp Fire. Deficiencies 8 and 27 relate to PG&E’s ability to conduct effective and properly scoped PSPS events, which is critical to the health and welfare of PG&E’s customers. All of the identified deficiencies concern critical elements that must be met before PG&E can be found to warrant a certification as a safe utility.

WSD should not approve safety certifications for PG&E unless it has found that it has satisfactorily remedied the Class A deficiencies and any other failures to comply with requirements for their 2020-2022 WMPs.

4. &THE COMMISSION’S CONCLUSION THAT THE EXECUTIVE COMPENSATION PROGRAM OF PG&E ‘MINIMALLY AND CONDITIONALLY’ SATISFIES AB 1054 IS NOT LEGALLY SUFFICIENT TO MEET THE REQUIREMENTS FOR SAFETY CERTIFICATIONS

Section 8389(e)(4) and (e)(6) specify detailed requirements for executive incentive compensation programs and executive compensation generally that must be met before a utility can be granted a safety certification. In the Bankruptcy OII, PG&E presented for the Commission’s consideration its proposal for executive compensation programs. In response, TURN and other parties presented testimony and briefing showing that PG&E’s proposal failed to satisfy the Section 8389(e) requirements. TURN’s pleadings presented considerable detail regarding the ways in which PG&E’s submission fell short of the statutory criteria.

The Commission’s decision acknowledges that the criticisms of TURN and other parties “may have merit”¹⁹ and further notes:

¹⁹ D.20-05-053, p. 98.

Looking at some of the criticisms and concerns raised by TURN provides some perspective on how challenging a task it will be to properly develop, implement and monitor an executive compensation plan that complies with state law and policy.²⁰

Thus, the CPUC decision recognizes that PG&E's plan may not comply with AB 1054 and that ensuring compliance would require more time and analysis than the compressed schedule in that case allowed.²¹ Nevertheless, D.20-05-053 concludes that PG&E's plan "minimally and conditionally" satisfies the requirements of Public Utilities Code Section 8389(e)(6)(C), "subject to further proceedings before this Commission."²²

TURN recognizes that the Commission felt that statutory deadlines prevented it from devoting the time to thoughtfully determine the specific improvements that PG&E's program must meet in order to comply with AB 1054. However, the fact remains that the law requires full compliance with the detailed AB 1054 requirements in order for WSD to approve safety certifications under Section 8389(e).

It should not be overlooked that PG&E bears significant responsibility for putting WSD into a bind. Even though the AB 1054 requirements are clear and specific, PG&E chose to design a program for 2020 that fell short of the required criteria. Whatever WSD does with this request, it should make explicit that it will not allow PG&E to gain a favorable decision on any future safety certification requests until it has re-designed its program to comply with the AB 1054 requirements. Utility executives should understand that their 2021 executive compensation programs are dependent on gaining WSD approval, even if that occurs after January 1, 2021. "Settled expectations" of utility executives, who should not be approving programs that WSD has already found deficient, should not be allowed to serve as a reason to approve deficient executive compensation programs in the future.

5. THE WSD SHOULD PREPARE A DRAFT RESOLUTION FOR A CPUC VOTE

TURN recommends that, as it did with the 2020-2022 WMPs, WSD should prepare draft resolutions resolving safety certification requests and that these resolutions be voted on by the CPUC as

²⁰ D.20-05-053, p. 97.

²¹ "[G]iven the schedule of this proceeding, the detail and complexity of the issues, and the need to address executive compensation thoroughly and carefully, we simply cannot adequately review, analyze and resolve in this decision the issues that have been presented." D.20-05-053, pp. 98-99.

²² D.20-05-053, p. 100.

part of the approval process. TURN recognizes that a CPUC vote is not currently required by statute, but the WSD is certainly free to follow this course if it so chooses. CPUC review and approval of the WSD determinations would serve at least two important purposes.

First, the Commission should be required to have a formal role in the approval process because the statutory criteria for a safety certification directly relate to the regulatory activities of the CPUC. In addition, as noted, the impact of a safety certification directly affects decision-making by the CPUC relating to the reasonableness of utility wildfire claims costs under Section 451.1. For these reasons, the CPUC decision-makers should have input into this important decision and the impact of such input should be transparent to the public.

Second, CPUC approval of a WSD resolution clarifies appeal rights and procedures, which are otherwise not addressed by statute and thus uncertain if the final decision is made by WSD. Such uncertainty can lead to unnecessary disputes and litigation, which should be avoided for matters such as this that are both highly important and time-sensitive.²³

6. CONCLUSION

TURN appreciates this opportunity to comment on PG&E's safety certification requests. For the second time in 10 years, PG&E has recently been convicted of numerous felonies for reprehensibly unsafe conduct. The DA Report explaining the facts underlying the Camp Fire convictions documents in great detail PG&E's callous disregard for the safety of its customers. Under these circumstances and for the reasons set forth above, WSD cannot find that PG&E has met the AB 1054 requirements to be certified as a safe utility.

²³ Before PG&E reflexively joins SCE in opposing this TURN recommendation, TURN encourages PG&E to engage in the following thought experiment. Suppose the WSD follows TURN's recommendation and denies PG&E's requested certification. Suppose further that PG&E believes WSD's decision to be based on legal and factual errors. Will PG&E simply accept WSD's determination as final or will it seek review of the determination? If the latter, what process will it pursue, what deadlines would govern, and what would be the standard of review? If WSD's decision is effectuated by a CPUC approved resolution, there are clear answers to these questions. Absent taking advantage of the established CPUC process for resolutions, the answers are, at best, unclear, which will invite avoidable disputes and litigation.

Dated: August 12, 2020

Respectfully submitted,

By: _____/s/_____

Thomas J. Long

Thomas J. Long, Legal Director

THE UTILITY REFORM NETWORK

EXHIBIT A

**Butte County District Attorney
THE CAMP FIRE PUBLIC REPORT**

**A Summary of the Camp Fire Investigation
June 16, 2020**



BUTTE COUNTY DISTRICT ATTORNEY



MICHAEL L. RAMSEY
District Attorney

MARK MURPHY
Chief Deputy District Attorney

JUAN DIAZ
Chief Investigator

THE CAMP FIRE PUBLIC REPORT

A SUMMARY OF THE CAMP FIRE INVESTIGATION

June 16, 2020

"To do Justice, as no one is above the Law, nor beneath its protection"

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PREFACE

During the early morning hours of Thursday, November 8, 2018, the Cal Fire Captain in charge of the Jarbo Gap station in the Feather River Canyon could hear the “Jarbo Winds” as they were known locally begin to howl as he got up to fix breakfast for his crew. As he fixed that breakfast he started to hear what he thought was rain begin to hit the roof and sides of the fire station. He started to look outside when the wind took the door from his hand. He discovered it wasn’t rain he was hearing, but pine needles from the surrounding forest forcibly pelting the outside of the station. He went back inside to continue fixing breakfast, but was interrupted as the station’s dispatch radio feed went off alerting him to a possible fire in the Canyon.

The Cal Fire crew immediately rolled out of the station up Highway 70 and the Canyon, past the small enclave of Pulga and up river to the Poe Dam. Arriving above PG&E’s Poe Dam just before sunrise, the Captain and crew saw the beginnings of a conflagration under the PG&E high voltage power line on the ridge top across the river from them. The sight sent a chill through the Captain and crew because they could see the fire was already exploding toward the south and west riding the Jarbo Winds, which were so high the Captain struggled to remain upright. The Captain radioed into his headquarters with urgency in his voice – his crew would never be able to get in front of this fire to control it and in a prophetic understatement he told dispatchers: “This has the potential of a major incident.”

In less than an hour, the fire had torn through Pulga and the mountain hamlet of Concow and reached the eastern outskirts of Paradise – throwing softball-sized embers ahead to the north into Magalia and over the town into the Butte Creek Canyon on the west side. Paradise and its residents were hit from three side by massive walls of fire. Chaos and confusion reigned. Thousands of homes and businesses were lost in the matter of a couple of hours. A town of some 26,000 people was utterly destroyed.

Eight-four souls were lost in the most horrific way imaginable – burned to death.

Within a few hours of the fire, Cal Fire arson investigators began to make their way to where the responding Captain had seen the start of the fire. Traveling up Camp Creek Road (from which the Camp Fire took its quirky name), the investigators came to what appeared to be the fire’s beginning. The ground under what was PG&E’s transmission tower #27/222 showed clear signs of the fire’s beginning and a burnt path toward the southwest. Looking up, the investigators saw a detached line hanging down into the steel superstructure of the high-voltage transmission tower.

Something had broken - and sent the live 115 kilovolt (kV) power line (also known as a conductor) to arc against the steel tower and shower molten steel and aluminum metal onto the grass and brush below. A painstakingly detailed arson investigation began.

Within a few hours, the Cal Fire investigators had begun to reach their preliminary conclusions that the Camp Fire was started by the failure of a suspension hook holding up an insulator string which in turn held up the highly energized line. The investigators had found the broken iron

hook, also known as a “C hook”, and it appeared to have not just broken, but had worn through after a great deal of time hanging in the windy environs of the Feather River Canyon.

The investigators reached out to the Butte County District Attorney’s Office on November 9, 2018 and discussed their initial findings with the office – including their concern that a PG&E helicopter had been seen hovering above the suspect tower.

The Butte County District Attorney’s Office had had past dealings with PG&E and its criminal violations of failing to clear vegetation from its lines which sparked fires. The office also knew PG&E was a federal felon for its criminal actions leading to the San Bruno gas line explosion.

A directive was given the Cal Fire arson investigators that the DA’s office was opening a joint investigation with them and to treat the fire origin site as a crime scene and to prevent anyone, including PG&E, from entering. (The Cal Fire investigators had already started the process of securing the scene with private security.)

And so began the Camp Fire Investigation. . .

The next week Cal Fire arson investigators directed PG&E linemen under their close scrutiny to begin the dismantling of tower 27/222 and seized relevant portions for evidence. Later, Butte County District Attorney investigators teamed with Cal Fire arson investigators to examine other power lines in the vicinity of the suspect tower. Evidence from those surrounding towers was seized with the assistance of experienced linemen from PG&E under the close scrutiny of a loaned Federal Bureau of Investigation (FBI) Evidence Team.

Prosecutors were taken from normal day-to-day business in the office and assigned to oversee the investigation. Thus began the arduous task of gathering information from PG&E and others to determine the who, what, how and why of the Camp Fire.

Early into the investigation it became clear that as we began to collect terabytes of data from a facially cooperative PG&E that more broad based and intrusive subpoenas would be needed to dig out data from the extensive PG&E files including its vendor files. Additionally as PG&E witnesses, past and present, were being contacted for interviews, we found PG&E has hired attorneys to represent them and encourage silence.

We partnered with the California Attorney General who assigned experienced prosecutors to assist in the investigation and it was decided a special investigative criminal grand jury should be sworn to subpoena evidence and examine reluctant witnesses under oath. This grand jury was in addition to the regular “watchdog grand jury” that is sworn in every June in Butte County. This special grand jury of 19 ordinary Butte County citizens was selected from 100 summoned potential jurors and sworn in on March 25, 2019.

As an investigatory grand jury, it was the duty of the jurors to sift through all the evidence, hear the witnesses and keep an open mind as to whether there truly was any criminal liability on the part of anyone for causing the Camp Fire. This dedicated group of citizens then meet in secrecy for the next year and heard nearly 100 witnesses, reviewed approximately 1600 exhibits, and produced some 6000 pages of transcript. It cannot be overemphasized the patience and sacrifice

of these citizens, meeting once to twice a week for almost a year. And since they were sworn to secrecy, they were not even able to tell their employers, friends and family what they were so diligently working on. Even more amazing was their dedication to their important work to seek justice. Such was their dedication that only three grand jurors were unable to finish their term.

The remaining 16, after their months of hard work and review of all matters, returned an Indictment finding sufficient evidence to charge the Pacific Gas and Electric Company with 85 felony counts – one count of unlawfully and recklessly causing the Camp Fire as a result of its gross negligence in maintaining its power line, and 84 individual counts of involuntary manslaughter naming each of the persons directly killed in the Camp Fire by PG&E's criminal negligence. The Indictment also included three special allegations for PG&E's causing great bodily injury to a firefighter; causing great bodily injury to more than one surviving victim; and causing multiple structures to burn (listed as approximately 18,804 structures). ([See attached Indictment.](#))

PG&E, who had been represented by criminal defense attorneys during the investigation and Grand Jury proceedings, was informed of the Indictment and decided to plead guilty "as charged" to all counts – thereby agreeing the evidence of its criminal negligence has been established beyond a reasonable doubt.

The following Camp Fire Public Report is a summary of the massive undertaking to determine if there was sufficient evidence to convict PG&E of its criminal behavior which lead to the Camp Fire and the awful destruction that followed. The Report also forms the core of legal documents filed with the Butte County Superior Court today to establish the Factual Basis for the pleas by PG&E to the Indictment and the People's Statement in Aggravation for the sentencing of the defendant corporation.

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INTRODUCTION

On November 8, 2018, a fire started underneath a PG&E transmission tower near Camp Creek Road, not far from the town of Pulga in Butte County, California. The fire quickly raged out of control, travelled to the town of Concow within an hour, and to Paradise – seven miles from the point of ignition – in less than 1.5 hours. Seventeen days later, on November 25, 2018, what had become known as the Camp Fire was finally declared 100% contained. It had burned 153,336 acres and destroyed approximately 18, 800 structures.¹ Some 589 structures were damaged.² A total of 84 lives were lost as a direct result of the fire and at least two civilians and one firefighter suffered great bodily injury. {[Attachment – Camp Fire Presentation](#)}

I. INITIAL TIME LINE

On November 8, 2018 at 6:15 a.m., the PG&E Grid Control Center (GCC)³ in Vacaville documented an “interruption” on the energized Caribou-Palermo 115kV transmission line in the Feather River Canyon.

At approximately 6:20 a.m. on November 8, 2018, a PG&E Hydro Division employee⁴ driving eastbound on Highway 70 observed a “bright light” above a ridgeline as he approached the Pulga Bridge. Initially the employee believed the bright light to be the sun rising behind the ridgeline; however, as he continued driving, he realized the source of the bright light was a fire underneath the PG&E transmission lines on a ridge on the north side of the Feather River. The employee noted the fire appeared to be at the base of a transmission tower. In that area of the Feather River Canyon cell phone service is not available. The employee used his PG&E radio to contact PG&E employees at the Rock Creek Powerhouse and reported the fire. These employees then called 911 and were transferred to the Cal Fire Emergency Communications Center (ECC) in Oroville. The 911 call from the Rock Creek Switching Station was received by Cal Fire ECC at 6:25:19 a.m.

At approximately 6:30 a.m., an employee of the California Department of Transportation (Cal Trans) arrived at the Cal Trans Pulga Station for work. While in the parking lot of the Pulga Station he observed a fire under a PG&E transmission tower northeast of the Pulga Station and took a photograph of it. The photograph {[Attachment 001](#)} showed a fire emanating out from

¹13,696 single family residences, 276 multi-family residences, 528 commercial structures, and 4,293 other structures were destroyed according to Cal Fire.

² 462 single family residences, 25 multi-family residences, and 102 commercial structures were damaged according to Cal Fire.

³ The GCC is the consolidated hub for all transmission operations for PG&E. GCC monitors the Supervisor Control and Data Acquisition (SCADA) for all transmission lines at all times. Any problem on any PG&E transmission line triggers an immediate alert in the GCC.

⁴ Throughout this report the names of local current/ former PG&E employees are not used. The Butte County District Attorney’s Office believes, based upon anger and frustration within the community, that disclosure of the identity of involved PG&E personnel living and/or working in the area may expose those personnel to harassment, threats or violence.

under transmission Tower :027/222⁵ (Tower 27/222) of the Caribou-Palermo 115kV transmission line (Caribou-Palermo line).

At 6:29:55 a.m., the initial Cal Fire notification went out to Captain Matt McKenzie at the Concow/Jarbo Gap Station. By 6:35 a.m., two Cal Fire engines from the Concow/Jarbo Gap Station were on Highway 70 headed eastbound toward Pulga. Captain McKenzie and his firefighters first observed the fire just before reaching the Pulga Bridge. The two engines continued on Highway 70 to the Poe Dam to assess the fire and formulate a plan of attack. From above the Poe Dam on the south side of the Feather River, at 6:44 a.m., Captain McKenzie observed that the fire was burning under the electric transmission lines on the ridge on the north side of the Feather River. Based upon the location of the fire {[Google Earth map of 27/222 area and Pulga](#)} as well as the high wind speed and direction, Captain McKenzie concluded there was no available route to attack the fire. Captain McKenzie immediately realized that the community of Pulga was in danger and dispatched his second engine to evacuate the residents of that community. From his position on Highway 70, Captain McKenzie took measure of the fire (and a photograph {[Attachment 002](#)}) and requested additional resources be deployed to the west to stop the fire at Concow Road. During his initial report to the ECC, based upon his observations of the fire, the topography, and the wind, Captain McKenzie warned, “this has the potential of a major incident.” (An hour later, at 7:44 a.m., the fire reached the Town of Paradise, a distance of approximately seven miles.)

At approximately 6:38 a.m., PG&E employees at the Rock Creek Powerhouse informed the GCC of the fire burning near the Poe Dam in the vicinity of the transmission lines. At approximately 6:40 a.m., the GCC notified the Transmission Line Supervisor for the Table Mountain District⁶ of the fire. The Transmission Line Supervisor dispatched a troubleman to immediately perform an emergency air patrol of the Caribou-Palermo line. The troubleman located and documented damage on Caribou-Palermo line Tower 27/222 at 12:00 p.m. on November 8, 2018.⁷

At approximately 6:48 a.m. fire watch cameras on Flea Mountain and Bloomer Hill {[Attachment – Google Earth map](#)} recorded a plume of smoke east of Concow and west of Pulga. {[Fire](#)

⁵ According to PG&E naming convention, a transmission line name is based upon the starting point and ending point of the line. The Caribou-Palermo line starts at the Caribou Powerhouse and ends at the Palermo substation. Tower numbers are determined by the distance from the start of the line in miles and the sequential number of towers. The Caribou-Palermo line is divided into two segments; Caribou-Big Bend and Palermo-Big Bend. The inclusion of a colon (:) before the tower number denotes the Caribou-Big Bend segment. On the Caribou-Big Bend segment the tower numbering starts at the first tower coming out of the Caribou Powerhouse (:000/001) and ends with the last tower before the Big Bend Substation (:037/303). Tower 27/222 is located in the 27th mile away from the Caribou Powerhouse and is the 222nd structure in the line. On the Palermo-Big Bend segment the tower numbers begin with the last tower before the Palermo Substation (000/001) and ends with the first tower after the Big Bend Substation (016/130). {[Attachment – Google Earth Map of C-P](#)}

⁶ PG&E’s electrical transmission grid is divided into geographic districts. Each district is supervised by a Transmission Line Supervisor. The transmission lines in the Feather River Canyon are within the Table Mountain District.

⁷ At 12:01 p.m. a Cal Fire investigator spotted and photographed a helicopter from a local charter helicopter firm hovering above tower 27/222. Based upon the tail number of the helicopter it was confirmed this was the helicopter performing the emergency inspection of the Caribou-Palermo line.

[Watch Camera Bloomer](#), [Fire Watch Camera Flea](#)} Cal Fire monitors initially attributed the plume of smoke to the Camp Fire. Later Cal Fire monitors and investigators determined the smoke plume was not associated with the Camp Fire and was caused by a separate and unrelated fire. Utilizing mapping tools Cal Fire investigators determined the plume of smoke had arisen from an area near the intersection of Concow Road and Rim Road in eastern Concow. The fire was named the Camp B Fire.

II. ORIGIN AND CAUSE INVESTIGATIONS

Cal Fire assigned a team of highly trained and experienced “Origin and Cause” investigators from around California to assist the local Butte Unit investigators. Cal Fire also retained and assigned subject matter experts to assist with the investigation. The investigators were divided into two teams. One team was assigned to investigate the Camp Fire. The second team was assigned to investigate the Camp B Fire.

Cal Fire investigators determined the origin of the Camp Fire was the dry brush below Tower 27/222 of the Caribou-Palermo line, an electrical transmission line owned and operated by PG&E. Tower 27/222 was determined to be a “Transposition” tower⁸ {[Attachment – Krelle 3D model](#)}. With the assistance of a licensed electrical engineer, Cal Fire investigators determined the cause of the Camp Fire was electrical arcing between an energized “jumper” conductor (power line) and the steel tower structure. {[Attachment - Framework of transposition tower](#)} Investigators determined a “C hook” that linked an insulator string connected to the jumper conductor to the transposition arm of the tower failed, allowing the energized jumper conductor to make contact with the steel tower structure. {[Attachment 004](#)} The ensuing electrical arcing between the jumper conductor and steel tower structure caused the aluminum strands of the conductor to melt as well as a portion of the steel tower structure.⁹ The molten aluminum and steel fell to the brush covered ground at the base of the steel tower structure. {[Attachment 005](#)} This molten metal ignited the dry brush.

Cal Fire investigators determined the Camp B Fire originated to the west of Concow Road south of the intersection of Concow Road and Rim Road in a geographical bowl. The area of origin was under the right of way of the Big Bend 1101 12kV distribution line. The area of origin was approximately 2.6 miles west of the origin of the Camp Fire. At the area of origin investigators located a broken conductor from the Big Bend 1101 12kV distribution line and a fallen Ponderosa pine tree. Burn patterns on the Ponderosa pine indicated the tree had contacted a live electrical line. {[Attachment 006](#)} PG&E records show a documented outage on the Big Bend 1101 12kV circuit at 6:45 a.m. on November 8, 2018. Investigators determined the Camp B Fire was ignited when the Ponderosa pine tree toppled over onto and broke the energized Big Bend 1101 12kV distribution line. The Ponderosa pine and its stump were examined and analyzed by a certified arborist¹⁰ retained by Cal Fire. The arborist determined that the Ponderosa pine was

⁸ A transposition tower is a transmission tower that changes the relative positions of the conductors (power lines) to each other to maintain electrical balance. Transposition towers are placed at intervals along the transmission line.

⁹ Aluminum melts at approximately 1200 degrees Fahrenheit, steel melts at approximately 2700 degrees Fahrenheit. The electrical engineer estimated the temperature of the electrical arc between the conductor and the steel structure between 5,000 and 10,000 degrees Fahrenheit.

¹⁰ International Society of Arboriculture Board Certified Master Arborist.

diseased and dying prior to November 8, 2018.¹¹ However, the arborist determined the disease was internal and likely would not have been visible to PG&E tree inspectors during their vegetation management inspections. According to the arborist the disease likely only would have been discoverable by an advanced inspection.¹²

Before the Camp B Fire grew large enough to escape its geographical bowl, it was passed over and consumed by the Camp Fire. Based upon fire indicators and patterns within the Camp B Fire and recordings from the fire watch cameras, Cal Fire investigators determined that the Camp B Fire had little, or no, effect on the Camp Fire.

III. INJURIES AND LOST LIVES

In support of the great bodily injury enhancements, evidence was presented of two civilians and one fire fighter who were severely burned during the Camp Fire.

Victim 1, an adult female, was located in Concow by a Cal Fire crew in the area trying to locate another reportedly trapped victim. As the engine was trying to leave the area, visibility was near or at zero, when suddenly the smoke cleared briefly. In that moment, the Captain of the fire crew saw an arm appear from between two vehicles. The Captain and his crew stopped and located the badly burned female victim. Lying beside the female victim was a deceased male. The deceased male was later identified as the female victim's roommate. The Captain described how he and his crew repeatedly checked the male roommate futilely hoping to find signs of life. The Cal Fire crew rescued the female victim. According to the Captain, when Victim 1 was lifted into the engine, her skin sloughed off due to the severity of her severe burns. She was taken to a medical evacuation area for transport to a hospital.

Victim 2, an adult female, was located in Paradise with her husband. Victim 2 and her husband had been trying to flee the fire but were overtaken. Victim 2 and her husband took shelter behind a boulder but both were severely burned. Victim 2 and her husband were rescued by Cal Fire and taken to a medical evacuation area for transport to a hospital. According to the Cal Fire Captain, who supervised that rescue and evacuation, Victim 2 also had skin sloughing off as she was taken from an engine and placed into an ambulance. Both Victim 2 and her husband were transported to the UC Davis Medical Center Burn Unit. Victim 2's husband ultimately succumbed to his burn injuries.

Victim 3, an adult male, was a Cal Fire Captain. The Captain described that as he and his crew were preparing to do a back fire operation to create a fire break east of Clark Road and south of Rattlesnake Flats Road, northeast of Butte College, the fire changed direction and, fueled by high winds, "exploded." As the fire came rushing towards them, the Captain held strands of barbed wire up to allow his crew to quickly escape into the safety of a clearing. After his crew was safely through the fence, the Captain attempted to go through the fence. As he was going

¹¹ The arborist also consulted with a professor of Dendrochronology at the Indiana State University Dendro Lab.

¹² An advanced inspection would entail use of diagnostic tools such as a mallet, a resistograph or a sonic tomogram and generally only occurs when anomalies or outward signs of disease or decay are observed during the visual inspection.

through the fence the Captain's gear caught on the barbed wire. As a result, the fire overran his position and the Captain was severely burned. The Captain was medically evacuated to UC Davis Medical Center Burn Unit. All members of his crew survived with only minor injuries.

The Camp Fire also directly¹³ caused the deaths of the following 84 persons: {[Attachment – Camp Fire Victim Locations download and open with Google Earth Pro](#)}

Joyce Acheson – Ms. Acheson, who was 78 years old, was found deceased in her home at 1250 Elliot Road, Unit 17, in the Town of Paradise. Ms. Acheson was of limited mobility, and lived in an area that was closed off to public access, thereby preventing any caregiver from getting to her.

Herbert Alderman – Mr. Alderman was 80 years old and was found deceased inside his home at 5775 Deanna Way in the Town of Paradise. A severely sprained ankle prevented his mobility at the time of the fire, and he made several phone calls to friends seeking rescue before he perished.

Teresa Ammons – Ms. Ammons was 82 years old. She was found deceased outside her home at 6674 Pentz Road, Unit 112, in the Town of Paradise. The evidence indicated Ms. Ammons died while attempting to flee the fire as she was found just outside her trailer with her purse nearby.

Rafaela Andrade – Ms. Andrade was 84 years old and was found deceased inside her home at 6664 Moore Road in the Town of Paradise. She could not walk without the assistance of a walker, and did not have the ability to evacuate on her own.

Carol Arrington – Ms. Arrington was 88 years old. Ms. Arrington was found deceased inside her home at 1866 Stark Lane in the Town of Paradise.

Julian Binstock – Mr. Binstock was 88 years old. The remains of Mr. Binstock and his dog were located in the shower of his residence at 5900 Canyon View Drive in the Town of Paradise.

David Bradburd – Mr. Bradburd was 70 years old. Mr. Bradburd was found near 6028 Dubarry Lane, in the Town of Paradise. Mr. Bradburd was found within 400 feet of his residence on Pentz Road, near a power line knocked down by the fire. Based upon the evidence, Mr. Bradburd was fleeing the fire when he died.

Cheryl Brown – Ms. Brown was 75 years old. Ms. Brown was found deceased in her home at 1387 N-B Lane in the Town of Paradise. Ms. Brown was found seated in a recliner next to her husband, Larry Brown.

Larry Brown – Mr. Brown was 72 years old. Mr. Brown was found deceased in his home at 1387 N-B Lane in the Town of Paradise. Mr. Brown was found seated in a recliner next to his wife, Cheryl Brown.

¹³ Only persons who died within the Camp Fire footprint on November 8, 2018 from fire-related injuries; or who were medically evacuated from within the Camp Fire footprint on November 8, 2018 to medical facilities and subsequently died as a result of fire-related injuries were counted as direct victims.

Richard Brown – Mr. Brown was 74 years old. Mr. Brown was found deceased under his pickup truck outside his residence at 13377 Eleran Lane in the community of Concow. Based upon the physical evidence, Mr. Brown tried to hide from the fire under his truck.

Andrew Burt – Mr. Burt was 36 years old. Mr. Burt was found deceased just outside of the front passenger side door of a minivan. The minivan was located facing north in the 5000 Block of Edgewood Road, approximately .3 miles south of Mr. Burt's residence at 5236 Edgewood Lane in the Town of Paradise. The remains of Mr. Burt's dog were found next to Mr. Burt. Based upon the evidence, Mr. Burt had been in the minivan attempting to escape the fire when the minivan was overcome by the fire. There were three other vehicles containing the remains of four other victims near the minivan.

Joanne Caddy – Ms. Caddy was 75 years old. Ms. Caddy was found deceased inside her home at 13812 West Park Drive in the community of Magalia.

Barbara Carlson – Ms. Carlson was 71 years old. Ms. Carlson was found deceased in her residence at 5577 Heavenly Place in the Town of Paradise. Ms. Carlson's remains were comingled with those of her sister, Shirley Haley.

Vincent Carota – Mr. Carota was 65 years old and found deceased inside his residence at 5471 South Libby Road in the Town of Paradise. Mr. Carota was a partial leg amputee without a vehicle.

Dennis Clark, Jr. – Mr. Clark was 49 years old. Mr. Clark was found deceased in the passenger seat of a car with his mother Joy Porter deceased in the driver's seat. Their vehicle was in a line of three other vehicles found facing north in the 5000 block of Edgewood Lane in the Town of Paradise. The vehicle was located approximately .3 miles south of Mr. Clark and Ms. Porter's residence on Sunny Acres Road, off of Edgewood Lane.

Evelyn Cline – Ms. Cline was 81 years old. Ms. Cline was found deceased in her residence at 578 Roberts Drive in the Town of Paradise. She was physically immobile and unable to leave her home without assistance.

John Digby – Mr. Digby was 78 years old and found deceased inside his residence at 6920 Clark Road, Unit #3, in the Town of Paradise.

Gordon Dise – Mr. Dise was 66 years old and was found deceased inside his home at 2735 Eskin Maidu Trail in Chico (Butte Creek Canyon.). According to his daughter, who fled the house with her father, he went back in their home for something and never made it back out.

Paula Dodge – Ms. Dodge was 70 years old. Ms. Dodge was found deceased between two cars in the carport of her residence at 5152 Pentz Road in the Town of Paradise. Ms. Dodge's husband, Randall Dodge, was found deceased next to her. Based upon the evidence, Mr. and Ms. Dodge were attempting to flee the fire.

Randall Dodge – Mr. Dodge was 66 years old. Mr. Dodge was found deceased between two cars in the driveway of his residence at 5152 Pentz Road in the Town of Paradise. Mr. Dodge's

wife, Paula Dodge, was found deceased next to him. Based upon the evidence, Mr. and Ms. Dodge were attempting to flee the fire.

Andrew Downer – Mr. Downer was 54 years old. Mr. Downer was found deceased outside the front door of his residence at 8030 Skyway, Unit A, in the Town of Paradise. Based upon the evidence, it appears Mr. Downer died while attempting to flee the fire. He was a wheelchair bound amputee and was unable to drive.

Robert Duvall – Mr. Duvall was 76 years old. Mr. Duvall was found deceased in the passenger seat of his truck. No one else was located in the truck. The truck was in a line of three vehicles found facing north in the 5000 block of Edgewood Lane in the Town of Paradise. The vehicle was located approximately .3 mile north of Mr. Duvall's residence on Sunny Acres Road, off of Edgewood Lane. A second vehicle registered to Mr. Duvall and containing the remains of Mr. Duvall's girlfriend, Beverly Powers, was located nearby.

Paul Ernest – Mr. Ernest was 72 years old. Mr. Ernest and his wife attempted to escape the fire by driving quads¹⁴ off road through a canyon. When their escape route was blocked by a rock formation, Mr. Ernest and his wife were overtaken by the fire. Both were severely burned, and airlifted to UC Davis Medical Center Burn Unit in Sacramento. Mr. Ernest passed away from his injuries on August 5, 2019, nearly 9 months after the fire. He never left the extended care medical facility in Sacramento, after being transferred there from the UC Davis Burn Unit.

Rose Farrell – Ms. Farrell was 99 years old. Ms. Farrell was found deceased on the front porch of her residence at 1378 Herman Way in the Town of Paradise. Her wheelchair was found near Ms. Farrell.

Jesus Fernandez – Mr. Fernandez was 48 years old. Mr. Fernandez was found on the ground between two vehicles on Broken Glass Circle near Vista Ridge Road in Concow. Mr. Fernandez was the roommate of burn Victim 1 (above). Victim 1 believed Mr. Fernandez died shortly before her rescue.

Jean Forsman – Ms. Forsman was 83 years old and found deceased inside her residence at 13747 Andover Drive in the community of Magalia.

Ernest Foss, Jr. – Mr. Foss was 63 years old. Mr. Foss was found deceased outside of his residence at 5236 Edgewood Lane in the Town of Paradise. Mr. Foss was found with his oxygen tank. The evidence indicates Mr. Foss, who had limited mobility, was attempting to flee the fire at the time of his death.

Elizabeth Gaal – Ms. Gaal was 80 years old and found deceased inside her residence at 5393 Sawmill Road, Unit # 27 in the Town of Paradise.

Sally Gamboa – Ms. Gamboa was 69 years old. Ms. Gamboa was located deceased in a field/clearing behind her residence at 1560 Sunny Acres Road in the Town of Paradise. Based upon the evidence, Ms. Gamboa died while attempting to flee the oncoming flames.

¹⁴ All terrain sport utility vehicles

James Garner – Mr. Garner was 63 years old. Mr. Garner was found deceased inside his residence at 6284 Woodbury Drive in the community of Magalia. Earlier on the morning of November 8, 2018, Mr. Garner had engaged in multiple telephone calls with his sister and nephew.

Richard Garrett – Mr. Garrett was 58 years old. Mr. Garrett was found deceased among trees not far from a residence at 4238 Schwyhart Lane in the community of Concow. Based upon the physical evidence Mr. Garrett was actively running from the fire when he was overtaken and killed by the flames.

William Godbout – Mr. Godbout was 79 years old and found deceased inside his residence at 3831 Camelot Lane in the community of Concow.

Shirley Haley – Ms. Haley was 67 years old. Ms. Haley was found deceased at 5577 Heavenly Place in the Town of Paradise. Ms. Haley's remains were found comingled with the remains of her sister, Barbara Carlson.

Dennis Hanko – Mr. Hanko was 56 years old and found deceased inside his residence at 5081 Wilderness Way, Unit 3A, in the Town of Paradise.

Anna Hastings – Ms. Hastings was 67 years old. Ms. Hastings was found deceased in her residence at 8391 Montna Drive in the Town of Paradise. She was disabled, with severe scoliosis, and unable to drive.

Jennifer Hayes – Ms. Hayes was 53 years old. Ms. Hayes was found deceased in her residence at 5683 Scotty Lake Drive, in the Town of Paradise.

Christina Heffern, Ishka Heffern and Matilde Heffern – Christina Heffern was 40 years old. Ishka Heffern, the daughter of Christina, was 20 years old. Matilde Heffern, the mother of Christina Heffern, was 68 years old. All three were located in their residence at 1865 Norwood Drive in the Town of Paradise. Their remains were located comingled in the bathtub of their residence. The Hefferns placed a 911 call as the fire approached their home. Somehow the phone line remained open as the house, and the three women, burned as helpless Cal Fire ECC dispatchers listened to their screams.

Louis Herrera – Mr. Herrera was 86 years old and found deceased inside of his home at 2376 Clearview Drive in the Town of Paradise. The remains of Mr. Herrera's wife, Dorothy Lee-Herrera, were also found in the residence.

Evva Holt – Ms. Holt was 85 years old and was found deceased in a burned vehicle near the intersection of Pearson Road and Stearns Road in the Town of Paradise, approximately 1.8 miles from Ms. Holt's residence.

TK Huff – Mr. Huff was 71 years old. Mr. Huff was located deceased outside of his residence at 13471 Green Forest Lane in the community of Concow. Mr. Huff only had one leg and generally used a wheelchair. Mr. Huff's wheelchair was found approximately 10 feet away from Mr. Huff. The physical evidence indicated Mr. Huff tried to escape the flames by dragging himself along the ground.

Gary Hunter – Mr. Hunter was 67 years old. Mr. Hunter was located deceased inside of his residence at 13554 Andover Drive in the community of Magalia. He had limited mobility, due to a stroke, and could not walk without assistance.

James Kinner – Mr. Kinner was 83 years old. Mr. Kinner was located deceased inside his residence at 5237 Black Olive Drive in the Town of Paradise.

Dorothy Lee-Herrera – Ms. Lee-Herrera was 93 years old. Ms. Lee-Herrera was found deceased in her residence at 2376 Clearview Drive in the Town of Paradise. The remains of Ms. Lee-Herrera's husband, Louis Herrera, were also found in the residence.

Warren Lessard – Mr. Lessard was 68 years old. Mr. Lessard was found deceased on the front porch of his residence at Athens Way and South Park Drive in the community of Magalia.

Dorothy Mack – Ms. Mack was 88 years old and found deceased inside her residence at 6674 Pentz Road, Unit 19, in the Town of Paradise.

Sara Magnuson – Ms. Magnuson was 75 years old. Ms. Magnuson was found deceased inside her residence at 1812 Drendel Circle in the Town of Paradise. Based upon the physical evidence it appears Ms. Magnuson wrapped herself in a wet carpet and sheltered in the bathtub in an attempt to save herself.

Dolores Joanne Malarkey – Ms. Malarkey was 90 years old. Ms. Malarkey was found deceased in her residence at 432 Plantation Drive in the Town of Paradise. The remains of Ms. Malarkey's husband, John Malarkey, were also found in the residence.

John Malarkey – Mr. Malarkey was 89 years old and was found deceased in his residence at 432 Plantation Drive in the Town of Paradise. The remains of Mr. Malarkey's wife, Joanne Malarkey, were also found in the residence.

Christopher Maltby – Mr. Maltby was 69 years old. Mr. Maltby was found deceased in his residence at 1040 Buschmann Road in the Town of Paradise.

David Marbury – Mr. Marbury was 66 years old. Mr. Marbury was found deceased inside his residence at 1481 Sun Manor, Unit A, in the Town of Paradise.

Deborah Morningstar - Ms. Morningstar was 65 years old and found deceased inside of her residence at 5848 Black Olive Drive, Unit 3, in the Town of Paradise. She was unable to drive, which prevented her from being able to flee.

Helen Pace – Ms. Pace was 84 years old. Ms. Pace was found deceased inside her residence at 6674 Pentz Road in the Town of Paradise. She had medical issues, which limited her ability to leave her home.

Joy Porter – Ms. Porter was 72 years old. Ms. Porter was found deceased in the driver's seat of her car with her son, Dennis Clark Jr., in the passenger seat. Their vehicle was in a line of three other vehicles found facing north in the 5000 block of Edgewood Lane in the Town of Paradise. The vehicle was located approximately .3 miles south of Mr. Clark and Ms. Porter's residence on Sunny Acres Road, off of Edgewood Lane.

Beverly Powers – Ms. Powers was 64 years old. Ms. Powers was found deceased in the driver's seat of a pickup truck registered to her boyfriend, Robert Duvall. The vehicle was in a line of three other vehicles found facing north in the 5000 block of Edgewood Lane, approximately .3 miles south of Mr. Duvall and Ms. Powers residence on Sunny Acres Road. One of the other two vehicles contained the remains of Mr. Duvall.

Robert Quinn – Mr. Quinn was 74 years old and found deceased in his residence at 5684 Clara Lane in the Town of Paradise.

Joseph Rabetoy – Mr. Rabetoy was 39 years old and found deceased in his residence at 5580 Angel Drive in the Town of Paradise. He had no means of escape as he didn't have a vehicle.

Forrest Rea - Mr. Rea was 89 years old and found deceased in his residence at 1909 Dean Road in the Town of Paradise.

Vernice Regan – Ms. Regan was 95 years old. Ms. Regan was found deceased outside of her home at 102 Magnolia Drive in the Town of Paradise.

Ethel Riggs – Ms. Riggs was 96 years old. Ms. Riggs was located deceased inside of her residence at 220 Berry Creek Drive in the Town of Paradise. Ms. Riggs spoke with her grandson via phone at least twice on the day of the fire and told him because the power was out she was unable to get her car out of the garage. Ms. Riggs told the grandson she could not reach the manual release for the garage door, and even if she could, she was not strong enough to raise the door.

Lolene Rios – Ms. Rios was 56 years old. Ms. Rios was found deceased in the basement of her home at 750 Meyers Lane in the Town of Paradise, along with the remains of her four dogs and two cats.

Gerald Rodrigues – Mr. Rodrigues was 74 years old and found deceased inside of his residence at 5436 Clark Road, Unit 14, in the Town of Paradise.

Frederick Salazar, Jr. – Mr. Salazar was 76 years old. Mr. Salazar was found deceased in his residence at 5303 Sawmill Road in the Town of Paradise. The remains of Mr. Salazar's wife, Phyllis Salazar, were also found in the residence.

Phyllis Salazar – Ms. Salazar was 72 years old. Ms. Salazar was found deceased in her residence at 5303 Sawmill Road in the Town of Paradise. The remains of Ms. Salazar's husband, Frederick Salazar, Jr., were also found in the residence.

Sheila Santos – Ms. Santos was 64 years old and found deceased in her home at 5471 S. Libby Road, Unit 34, in the Town of Paradise.

Ronald Schenk – Mr. Schenk was 74 years old. Mr. Schenk was found deceased in his home at 5471 S. Libby Road, Unit 33, in the Town of Paradise.

Berniece Schmidt – Ms. Schmidt was 93 years old. Ms. Schmidt was found deceased inside of her residence at 14175 Citadel Way in the community of Magalia with the remains of her cat and a kitten.

John Sedwick – Mr. Sedwick was 82 years old. Mr. Sedwick was found deceased on the front porch of his residence at 13816 Glover Lane in the community of Magalia.

Don Shores - Mr. Shores was 70 years old. Mr. Shores was found deceased in a recliner in his residence at 6778 Ishi Drive in the community of Magalia. The remains of Mr. Shores' wife, Kathy Shores, were found in an adjacent recliner. Also located with Mr. and Ms. Shores were the remains of two dogs and two cats.

Kathy Shores – Ms. Shores was 65 years old. Ms. Shores was found deceased seated in a recliner in her residence at 6778 Ishi Drive in the community of Magalia. The remains of Ms. Shores' husband, Don Shores, were found in an adjacent recliner. Also located with Mr. and Ms. Shores were the remains of two dogs and two cats.

Judith Sipher – Ms. Sipher was 68 years old. Ms. Sipher was found deceased in her residence at 1005 Village Parkway in the Town of Paradise.

Larry Smith – Mr. Smith was found severely burned in the driveway of his home at 6428 Rocky Lane in the Town of Paradise. Mr. Smith was rescued and transported to the UC Davis Medical Burn Center. Mr. Smith succumbed to his injuries while still in the hospital 17 days later. Mr. Smith was 80 years old.

Russell Stewart – Mr. Stewart was 63 years old and found deceased inside of his home at 6884 Pentz Road in the Town of Paradise.

Victoria Taft – Ms. Taft was 67 years old and found deceased inside of her home at 5883 Copeland Road in the Town of Paradise.

Shirlee Teays - Ms. Teays was 90 years old. Ms. Teays was found deceased inside of her residence at 9289 Skyway Road, Unit 15, in the Town of Paradise. She appears to have been holding or hugging a framed photograph.

Joan Tracy – Ms. Tracy was 82 years old. Ms. Tracy was found deceased inside of her home at 5326 Sawmill Road in the Town of Paradise.

Unknown – The remains of this unknown victim were found comingled with the remains of another victim in Concow. Attempts at identification are still being made.

Ellen Walker – Ms. Walker was 72 years old and found deceased inside of her home at 4220 Schwyhart Lane in the community of Concow.

Donna Ware – Ms. Ware was 86 years old and found deceased inside her home at 5783 Waco Lane in the Town of Paradise.

Isabel Webb – Ms. Webb was 68 years old. Ms. Webb was found deceased inside her home at 1449 Sleepy Hollow Lane in the Town of Paradise.

Marie Wehe – Ms. Wehe was 78 years old. Ms. Wehe was found deceased inside a burned truck on the side of Windermere Lane in the community of Concow approximately .3 mile east of Ms. Wehe's residence on Windermere Lane.

Kimber Wehr – Ms. Wehr was 53 years old and found deceased inside her residence at 5908 Del Mar Avenue in the Town of Paradise. She was unable to drive due to a neurological disability, and was unable to flee the fire on her own.

David Young – Mr. Young was 69 years old. Mr. Young was found deceased with two unidentified animals inside his mini-van. The mini-van was found crashed into a tree near the intersection of Hoffman Road and Jordan Hill Road in the community of Concow. The vehicle was located approximately 1.5 miles west of Mr. Young’s residence on Hog Ranch Road in the community of Concow. Based upon the evidence, Mr. Young crashed while fleeing the oncoming fire. Mr. Young and the two animals were found in the cargo area of the mini-van. The autopsy determined Mr. Young survived the crash, but was killed by the fire.

IV. BACKGROUND OF THE FAILED COMPONENT

a. History of the Caribou-Palermo 115kV Transmission Line

According to historical reports¹⁵ provided by PG&E, the section of the Caribou-Palermo line that runs in the Feather River Canyon from the Caribou Powerhouse to the Big Bend Substation, was built between 1919 and 1921 by the Great Western Power Company. What is now known as the Caribou-Palermo line was originally part of a 165kV transmission line that carried electricity from the Caribou Powerhouse to the Valona Substation in Contra Costa County.¹⁶ PG&E acquired the Caribou Powerhouse and the entire Caribou-Valona 165kV transmission line (Caribou-Valona line) when it purchased Great Western Power Company in 1930. According to the reports, sometime during the 1960s the Caribou-Palermo line was converted to 115kV. According to the reports, there were eleven segments¹⁷, including the Caribou-Big Bend segment, of the original Caribou-Valona transmission line still in service in 2018.

Despite the fact that PG&E has owned the Caribou-Big Bend portion of the Caribou-Palermo line since 1930, the evidence established PG&E did not catalogue or replace the original

¹⁵ In April 2017 cultural resources specialists from PG&E produced a document entitled “National Register of Historic Places Inventory and Evaluation of Eleven Transmission Lines Associated with the Historic Alignment of the Caribou-Valona Transmission Corridor (NRHP Inventory and Evaluation). The NRHP Inventory and Evaluation was updated in October, 2018 by Cardno Inc. The NRHP Inventory and Evaluation includes a 2018 report entitled “DPR 523 Form” produced by the California Department of Parks and Recreation (DPR Report).

¹⁶ Using a current map, the original Caribou-Valona line ran parallel to the Feather River from Caribou-Road through the Feather River Canyon, passing to the east of Oroville to Palermo. South of Palermo the line ran parallel to State Route 70 thru Sacramento. From south of Sacramento the line ran parallel to Interstate 80 to Vallejo. The line crossed the bay from Vallejo to Valona parallel to the current Carquinez Bridge on Interstate 80. The total length of the line was 1368 steel towers and 186 miles.

¹⁷ As the electrical transmission grid has grown and substations were added the original Caribou-Valona line was divided into segments (sometimes referred to as circuits in PG&E historical documents) corresponding to the substations. The eleven segments still in use in 2018 were the Caribou-Palermo line, Paradise-Table Mountain, Palermo Pease, Pease-Rio Oso, Rio Oso-West Sacramento, Brighton-Davis, Brighton-Davis (idle), Vaca-Suisun-Jamison, Ignacio-Mare Island #1, Oleum-G #1 and Oleum-G #2.

conductors,¹⁸ insulators or attachment hardware¹⁹ on many of the towers in the original Caribou-Big Bend section of the transmission line.

Many components on Tower 27/222 were identified by PG&E as original Great Western Power components because they matched components included in the original Great Western Power Company schematic drawings for construction of the transmission line. Among those components were the insulators hung from C hooks²⁰. The records provided by PG&E clearly established the insulator string hanging from the C hook that broke on November 8, 2018 was an original 1921 insulator. Other components, such as the C hooks and the conductor, either did not completely match the original records²¹ or PG&E did not possess original records.²²

Evidence established that, with the exception of add-on hanger brackets which were added to the ends of the transposition arms to replace worn hanger holes, the transposition components on Tower 27/222, including the transposition arms, C hooks, insulator strings and jumper conductor, were original components in service since 1921. The evidence further established that despite owning Tower 27/222 since 1930, PG&E had little or no information about the 97-year-old conductor and the hooks, original hanger holes and bolted-on hanger hole plates supporting that conductor.

b. C Hook and Hanger Hole Wear

The broken C hook {[Attachment 7](#)} and the transposition arm {[Attachment 8](#)} on which it had been hung were collected as evidence by Cal Fire investigators²³. The transposition arm was identified as the left “phase” arm of Tower 27/222 {[Attachment – 3D model w/ left phase highlighted](#)}. This left phase arm had a bolted-on hanger hole plate which showed substantial wear where the broken hook had hung.

Cal Fire investigators also collected as evidence the right phase transposition arm and its still-connected (hung) C hook from Tower 27/222. {[Attachment 9](#)} While examining the right phase C hook, Cal Fire investigators observed a “channel” had been worn into that hook where it hung from the bolted-on hanger plate hole of that transposition arm. {[Attachment 10](#)} The wear channel was similar to the channel cut into the broken left phase C hook. Similarly the right

¹⁸ In layman’s terms, a “conductor” is known as a power line or wire.

¹⁹ Hot end attachment hardware attaches the insulators to the conductor. Cold end attachment hardware attaches the insulators to the tower/structure/pole. {[Attachment – illustrative photo](#)}

²⁰ Also known as “Suspension hooks.” C hooks are part of the cold end attachment hardware.

²¹ The plans for the original Great Western Power transposition towers included a schematic, dated October 11, 1912, of an Ohio Brass suspension hook with a raised B on the right face of the hook. The relevant hook from Tower 27/222 matched the schematic except the raised B was on the left face of the hook.

²² PG&E responded to questions about the make, model and manufacturer of the conductor on Tower 27/222 by referring to an April 1922 article written by W. A. Scott in Engineering World entitled “Great Western Power Co.’s 165,000-Volt Transmission Line”.

²³ The front portion of the C hook that broke off was never recovered. Cal Fire personnel spent several days meticulously searching the area below Tower 27/222 and could not locate that broken piece. It was noted however that area was on a steep rocky slope which ran off toward the Feather River Canyon.

phase hanger hole showed substantial wear where the hole and hook connected. {[Attachment 11](#)}

Investigators also noted there were original hanger holes on both the left and right transposition arms that showed extensive wear. It was obvious the bolted-on hanger plates with their holes were replacements for these original hanger holes indicating that PG&E was aware that the hooks and holes were rubbing on each other causing wear. The wear patterns observed on the hanger holes is described as “keyholing.”

As a result of the observations of the Cal Fire investigators, an inspection of other transposition towers²⁴ on the Caribou-Palermo line was initiated by the Butte County District Attorney. Based upon the historical records and the C hooks and hanger holes from Tower 27/222, investigators from Cal Fire and the Butte County District Attorney’s Office concluded that any more than 3/16” space between top of the C hook and top of the hole indicated wear to either the C hook or the hanger hole, or both²⁵. In January 2019, investigators from the Butte County District Attorney’s Office flew the Caribou-Palermo line in a county helicopter and documented transposition towers on which the gap between the top of the C hook and the top of the hanger hole were substantially larger than 3/16.”

From the helicopter, investigators located wear to C hooks and hanger holes on three other transposition towers on the Caribou-Palermo line between the Caribou Powerhouse and the Big Bend Substation. The towers were identified as tower numbers 20/160, {[attachment – 20/160 wear](#)} 24/199 {[Attachment – 24/199 wear](#)} and 35/281. {[Attachment – 35/281 wear](#)} This wear was similar to that found on the C hooks and hanger holes on Tower 27/222. Subsequently, Butte County District Attorney investigators and Cal Fire investigators, along with Jon McGormley - an engineer and failure analysis expert,²⁶ further inspected each of these three towers. Investigators and Mr. McGormley also identified a fourth transposition tower, tower number 32/260, {[attachment – 32/260 wear](#)} on which there appeared to be very little wear between the C hooks and hanger holes. Tower numbers 20/160, 24/199, 27/222 and 35/281 were all located on ridgelines and exposed to the wind. Tower 32/260 was located in a valley where it was protected from the wind.

During the inspection of one of the four towers - Tower 24/199 - investigators noted that, similar to Tower 27/222, bolted-on hanger plate holes had been added to the transposition arms and the C hooks were hanging from those hanger holes instead of the original hanger holes of the transposition arm. This again indicates that PG&E was aware of the wear on C hooks and

²⁴ Because transposition towers have unique physical characteristics, investigators focused only on transposition towers. Transposition towers on the Caribou-Big Bend section are distinguished from other towers by the T mast atop the tower and the transposition arms on the source side of the tower. Towers 20/160, 24/199, 32/260 and 35/281 were transposition towers identical to Tower 27/222.

²⁵ According to the original schematics of the transposition towers the C hooks were 15/16” thick at the point of contact and the hanger holes were 1 1/8” in diameter. The hooks were intended to fit snugly into the holes.

²⁶ Jon McGormley was retained by Cal Fire and is an engineer and failure analysis expert with Wiss, Janney, Elstner Associates (WJE). WJE is a global firm of engineers, architects and materials scientists with a division focused on failure analysis.

hanger holes. It appeared to investigators that, at some previous time, the jumper conductor on Tower 24/199 {[Attachment – 24/199 jumper](#)} had been shortened and spliced together using a parallel groove connector. PG&E has no records of when or why this work was done. Investigators further observed the right phase²⁷ insulator string appeared to be less aged than the left phase insulator string and, as a result of the shorter jumper conductor, was not hanging plumb. From the ground, investigators also observed black marks on the tower leg nearest the right phase insulator string. This was indicative of arcing due to faulty or broken equipment. On the ground below Tower 24/199, investigators found an old insulator string.²⁸

With the assistance of PG&E²⁹, investigators seized C hooks and transposition arms from two of the three towers³⁰ with obvious wear and the tower without obvious wear. Seizure of all of the C hooks and transposition arms was catalogued and documented by a Federal Bureau of Investigation (FBI) Evidence team. Of the four towers, Tower 24/199 was found to be the most similar to Tower 27/222 in terms of topography, meteorology and wear. The right phase C hook from Tower 24/199 was the most worn C hook found on any of the towers.

The C hooks, transposition arms, and hanger plate holes from Towers 27/222 and 24/199 were sent to the Metallurgy Unit of the FBI Laboratory at Quantico, Virginia for metallurgical analysis by their recognized metallurgical experts. The C hooks were examined for defects. No defects were found. The broken left phase C hook from Tower 27/222 and the most worn right phase C hook from Tower 24/199 were determined to be malleable cast iron. The least worn C hooks from Towers 27/222 and 24/199 were determined to be forged, plain carbon steel. The broken C hook from Tower 27/222, the most worn hook from Tower 24/199, and a less worn hook were tested for hardness.³¹ The testing determined there was a significant difference in hardness between the most worn malleable cast iron hooks, and the least worn forged plain carbon steel hook. The transposition arms were also examined and analyzed, and all four transposition arms and the bolted on hanger brackets were found to be made of galvanized plain carbon steel.³²

²⁷ The term phase relates to the connection between the tower structure and the conductors. The Caribou-Big Bend section has three conductors and three phases; left, center and right.

²⁸ This was not unusual. Under numerous towers on the Caribou-Palermo line investigators found discarded insulator strings, insulator bells, conductor line and steel members.

²⁹ Any work on an electrical transmission tower requires special training and equipment. Investigators were unable to identify any qualified persons to perform the work. As a result, investigators had to rely on PG&E personnel to remove the relevant components from Tower 27/222 in November, 2018 and Towers 20/160, 24/199 and 32/260 in March, 2019.

³⁰ The C hooks and transposition arms from the fourth tower, 35/281, were replaced by PG&E in February, 2019. Those C hooks and transposition arms were seized by Cal Fire and BCDA investigators from a PG&E evidence storage facility.

³¹ The Superficial Rockwell HR30TW hardness test was used to determine hardness.

³² All of the transposition arms and hanger brackets were tested for hardness utilizing the Rockwell HRBW hardness test.

The FBI Lab scanned all of the hooks and transposition arms. The scans were used to build 3D models of each of the components. {[Attachment – 3D models download and open with Adobe Acrobat Pro](#)}

The metallurgist at the FBI Lab also analyzed the wear patterns on the C hooks and hanger holes (both original holes and the added brackets). The metallurgist determined that as a result of rotational body on body wear, the edge of the hanger holes had cut a channel into the C hooks and the C hooks had worn away the bottom of the hanger holes elongating the holes³³.

{[Attachment – Camp Fire Presentation 3:29-3:46](#)} On the broken C hook from Tower 27/222 it was determined the channel had cut approximately 14/16” {[Attachment – FBI lab photo of break](#)} into the hook before the remaining metal broke under the weight of the insulator string and jumper conductor.³⁴ On the most worn C hook from Tower 24/199 it was determined that the channel had cut approximately 12/16” channel into the hook.

Under microscopic analysis, the FBI Metallurgist also observed the channeling of the right phase C hook from Tower 24/199 showed a distinct change in angle. The metallurgist testified it was her opinion the distinct change in angle could have been caused by shortening of the jumper conductor which changed the position and angle of the insulator string attached to the C hook.

The FBI data, along with LIDAR scans³⁵ of Towers 27/222 and 24/199, was forwarded to Jon McGormley. Using this information, Mr. McGormley was able to build a computer model of Tower 27/222. The model took into account the differing hardness of the C hooks and hanger holes.³⁶ Working with meteorologist Kris Kuyper³⁷, Mr. McGormley and his team created a wind load model of the Feather River canyon, enabling them to calculate that the wear on the broken C hook from Tower 27/222, as well as the most worn C hook from Tower 24/199, was consistent with approximately **97 years of rotational body on body wear**.³⁸ {[Attachment – Camp Fire Presentation 3:52-3:54](#)}

³³ Known as keyhole wear or “keyholing.”

³⁴ According to PG&E written response to CPUC data request SED-007 question 2 each suspension hook supports approximately 142.8 pounds.

³⁵ Lidar scans were performed by the Cal Fire Lidar Team.

³⁶ The hardness of the individual metals involved plays a significant role in body on body wear. Metallurgical data from the FBI Laboratory was provided and fed into the model. The Superficial Rockwell HR30TW results for the C hooks and the Rockwell HRC results for the transposition arms were converted using ASTM E140 for comparison purposes. On the Vickers Kg/mm2 the broken hook from 27/222 scored 114 for hardness, the most worn hook from 24/199 scored 119 for hardness and the least worn hook scored 222, the transposition arm and bracket from 27/222 scored 134 and 152 for hardness, the transposition arm and bracket associated to the most worn hook on 24/199 scored 120 and 138 for hardness and the transposition arm and bracket associated to the least worn hook scored 118 and 152 for hardness.

³⁷ Kris Kuyper is the former Chief Meteorologist for Action News in Chico. Kuyper was retained as an expert by the Butte County DA.

³⁸ The transposition arms metal (around the original hanger holes) was less hard than the bolted-on hanger plate hole metal. The original hanger holes showed significantly more keyhole wear than the bracket holes.

V. INSPECTION AND PATROL POLICIES

State and federal regulatory requirements dictate PG&E must establish and follow set guidelines for patrol, inspection and maintenance of its overhead electric transmission lines. The 2012 Quanta Technology “Transmission Line Inspection Procedures Final Report”³⁹ outlined the various regulatory requirements. Among these requirements is CPUC General Order (GO) 165. Section IV of this General Order states “[e]ach utility shall prepare and follow procedures for conducting inspections and maintenance activities for transmission lines.”⁴⁰

Since 2005, PG&E electric transmission inspection, patrol, and maintenance policies have been set forth in the “Electric Transmission Preventative Maintenance Manual” (ETPM). According to the ETPM: “Inspection and patrol procedures are a key element of the preventive maintenance program. The actions recommended in this manual reduce the potential for component failure and facility damage and facilitate a proactive approach to repairing or replacing identified, abnormal components.”

a. 1987 Inspection and Patrol Bulletin

Prior to the implementation of the ETPM in 2005, inspection and patrol policies were documented in “bulletins”. The oldest bulletin provided by PG&E was dated November 1, 1987⁴¹, and entitled “Routine Patrolling and Inspection of Transmission Lines.” This bulletin stated patrols are performed “to ensure that the transmission facilities are in good repair in order to maintain a high standard of service, reliability, and safety, and the patrol policy is consistent with GO95.”⁴² In this 1987 bulletin, the terms “patrol” and “inspection” were used interchangeably.

The 1987 policy divided PG&E’s electrical transmission system into 4 parts: Class A circuits, Class B circuits, Class C circuits, and Underground. For overhead circuits,⁴³ the patrol or inspection cycles were determined by the class designation of the circuit. A PG&E troubleman,⁴⁴ who worked in the Feather River Canyon between 1987 and 1995, established the Caribou-Palermo line was considered a “Class B Circuit.” As such, under the 1987 policy the Caribou-Palermo line was required to be patrolled three times each year: one ground patrol and two aerial patrols. In addition, the 1987 policy required climbing inspections of five percent of the tower structures per year; and an infrared patrol⁴⁵ every five years. According to the 1987 policy bulletin, all patrols of transmission lines were to be completed by a “Transmission Troublemán.” This policy ensured that every overhead transmission structure would be climbed

³⁹ Quanta Technologies is a multi-national electrical utility consulting company. Quanta Technologies was retained by PG&E in 2011 to review the ETPM. This report was commissioned by, and paid for by, PG&E.

⁴⁰ The California Independent System Operator (CAISO) “Transmission Control Agreement” and Western Electricity Coordinating Council (WECC) standard FAC-501 also require PG&E to have and follow written policies for inspection and maintenance of electrical transmission lines.

⁴¹ The 1987 bulletin was the sixth revision of an existing policy bulletin and replaced the fifth revision which was published December 1, 1984 according to the face page of the 1987 bulletin. Based upon interviews with PG&E linemen from the 1970s and 1980s it is believed that the original policy bulletin was published 1972-75.

⁴² GO95 is General Order of the CPUC number 95. GO95 establishes building, maintenance and replacement regulations for electrical transmission.

⁴³ A circuit is the path electrical current flows. In the 1980s PG&E referred to transmission lines as circuits. Distribution lines are still referred to as circuits. Transmission lines are now referred to as lines.

⁴⁴ See Section VII “Troublemén and Training” below for the definition of the position of Troublemén.

⁴⁵ An infrared patrol uses infrared, thermal cameras to identify hot spots on the line. Hot spots may indicate a defect or weakness on the line.

at least once every 20 years. Because PG&E inspection/patrol records prior to 2000 are not available, it is unknown if Tower 27/222 was one of the towers subjected to a climbing inspection between 1987 and 1994.

Appendix A to the 1987 policy bulletin contained a checklist of “Conditions to be noted when patrolling lines.” One of the conditions to be noted was “Worn hardware and connectors.” Through interviews with transmission lineman, troublemen, and engineers, it was established the C hooks were technically part of the “cold end attachment hardware.”

Former PG&E Transmission Line Supervisors from 1987 noted the checklist inclusion of “worn hardware” was a result of a 1987 PG&E Laboratory Test Report⁴⁶ documenting a worn C hook and hanger hole from a Bay Area transmission tower⁴⁷. Photos of the worn C hooks and holes were distributed to troublemen in all of the PG&E regions for training purposes, and inspection of C hooks and hanger holes was made a specific priority during inspections/ patrol.

b. 1995 Inspection and Patrol Policy

The 1987 policy remained in effect until it was replaced by the “ES Guideline” in 1995. The 1995 ES Guideline made substantial changes, specifically separating out patrols from inspections. Inspection frequency was determined by a transmission line score on an “Inspection Frequency Checklist” and drastically reduced the frequency and thoroughness of inspections. The Caribou-Palermo line was reduced from three patrol/inspections (one ground/two aerial) per year to one ground inspection every 24 months and one aerial inspection every 24 months. Required routine climbing inspections were eliminated. Climbing inspections would only occur if “triggered” by one or more specific findings listed as triggers.

c. 2005 ETPM Inspection and Patrol Procedures

The 1995 policies remained in effect until they were replaced by the ETPM in 2005. According to the ETPM section entitled General Inspection and Patrol Procedures, “[t]hese inspection and patrol procedures were developed as a key element of the preventative maintenance program. The recommended actions were selected to reduce the potential for component failures and facility damage and to facilitate a proactive approach to repairing or replacing identified, abnormal components.”

The ETPM differentiated between inspections and patrols, and established definitions for each. According to the 2005 ETPM in the Detailed Overhead (OH) Inspections section:

“A detailed ground, aerial or climbing inspection of the asset⁴⁸ looks for abnormalities or circumstances that will negatively impact safety, reliability, or asset life. Individual elements and components are carefully examined through visual and/or routine diagnostic tests and the abnormal conditions of each are graded and/or recorded.

Overhead line facilities are to be inspected in accordance with the provisions in Section 2.0 of this manual. The inspections are to include detailed visual observations,

⁴⁶ The Laboratory Test Report was published approximately nine months before the Inspection and Patrol Bulletin. This Laboratory Test Report is described more fully in Section XVII “Knowledge of Risk/Consequence.”

⁴⁷ Based upon historical records it is believed that the tower was part of the original Caribou-Valona line built 1918-1921.

⁴⁸ An asset is a structure, pole or tower.

operational readings, and component testing to identify abnormalities or circumstances that will negatively impact safety, reliability or asset life.”

The 2005 ETPM **Patrols** of overhead transmission assets section states that:

“The QCR’s⁴⁹ primary responsibility in an overhead electric facility is to visually observe the electric facilities, looking for obvious structural problems or hazards without the use of measuring devices, tools, or diagnostic tests, and to record that the facilities have been patrolled.”⁵⁰

The ETPM adopted verbatim the 1995 policy on climbing inspections and triggers. According to section 3.4:

“A climbing inspection is a detailed, supporting structure based observation of the facilities installed to determine if there are any abnormal or hazardous conditions that adversely impact safety, service reliability or asset life, and to evaluate when each identified abnormal condition warrants maintenance.”

Climbing inspections may also be required for specific structures or components to properly assess a condition found during a ground or aerial inspection or patrol that could not be adequately assessed during the inspection of patrol.”

As of the 2005 ETPM, the Caribou-Palermo line was reduced to only being inspected once every five years and patrolled once per year in non-inspection years. (This reduction again is from the three patrol/inspections per year prior to 1995.)

The 2006 revision of the ETPM appears identical to section 2 of the 2005 ETPM and identifies the “Best View Position” for individual components on a transmission structure.⁵¹ According to Table 2.3-1 the best position to view insulators and hardware is aerial inspection (not patrol), ground inspection above 10’, and climbing inspection. The terms “aerial inspection” and “ground inspections above 10’” were not specifically defined in the ETPM. According to former PG&E personnel, an “aerial inspection” is significantly more detailed than an “aerial patrol” and requires a helicopter to fly 360 degrees around each structure at an altitude and speed which allows for detailed inspection of the structure components. A ground inspection above 10’ involves the use of a bucket truck to lift the QCR to allow for close inspection of the top part of the structure.

d. Patrol and Inspections Subsequent to the 2005 ETPM

Since 2005 the ETPM has been revised on multiple occasions⁵². The revisions have not changed the inspection or patrol cycles or the requirements for inspections and patrols. At the time of the Camp Fire, the third revision of the ETPM, issued May 12, 2016 was in use. Shortly after the Camp Fire, on November 20, 2018, the 4th revision of the ETPM⁵³ was published. Among other changes, the fourth revision of the ETPM incorporated new requirements for the prioritization and correction of safety hazards in Tier 2 and Tier 3 high fire threat areas identified in the 2018

⁴⁹ QCR is Qualified Company Representative. See section VII-“Troublemens and Training” for more information.

⁵⁰ See Section VII “Troublemens and Training” below for the definition of the position of QCR.

⁵¹ Copies of the 2005 ETPM provided by PG&E were missing page 2-4.

⁵² Revised editions of the ETPM were published in October 2006, April 2009, January 2011, December 2014, May 2015, May 2016 and November 2018

⁵³ Although the May 2016 revision was the sixth revision of the ETPM, PG&E did not start numbering revisions until the December 2014 edition, which was designated revision one.

CPUC Fire Threat Map.⁵⁴ These changes were required by amendments to GO95 by the CPUC, which took effect in January 2018.⁵⁵

e. The 2012 Quanta Report

The 2012 Quanta Technologies “Transmission Line Inspection Procedures Final Report” was a “comprehensive review of Pacific Gas and Electric’s (PG&E) current standards and practices used for ground patrol inspection of overhead transmission lines.”⁵⁶ According to the report, the ETPM was “found to be a comprehensive, well written document that adhered to its purpose to “ensure uniform and consistent required procedures for patrols, inspections, equipment testing, and condition assessment of electric transmission line facilities.” Quanta did not, and the report did not, evaluate the actual use, or non-use, of the ETPM by PG&E.

The evidence clearly established that PG&E did not, in fact, follow the procedures and requirements established in the ETPM. Based upon the evidence, it is reasonable to conclude that sections of the ETPM relating to inspections and patrols of overhead electric transmission lines were simply a façade created to meet the requirements of the regulators and the CAISO⁵⁷.

VI. REDUCTION OF UNIT COSTS FOR INSPECTIONS AND PATROLS

Although there were no changes to the frequency of inspections and patrols between the 2005 and 2018 ETPMs, the evidence established PG&E considered further reducing the frequency of inspections and patrols. According to 2013 internal PG&E PowerPoint, a committee was formed to explore opportunities to reduce costs by reducing the frequency of inspections and patrols and examine said “unit costs.” According to the “Problem Statement:”

“Tline⁵⁸ patrols/inspection have not been modified in approximately 10 years relative to frequency and work methods. There may be opportunities to reduce costs by 1) changing frequency of patrols/inspections or 2) finding more efficient work practices. Benchmarking PG&E’s practices against other utilities may identify potential opportunities for efficiency savings.”

Under the heading “Business Objectives:”

⁵⁴ On January 19, 2018, the CPUC adopted and published the CPUC Fire-Threat Map. The Fire-Threat Map identified elevated (Tier 2) and extreme (Tier 3) fire threat areas in the State of California.

⁵⁵ In conjunction with the Fire-Threat Map, the CPUC amended GO 95 to add regulations to enhance fire safety in Tier 2 and Tier 3 fire threat areas.

⁵⁷ California Independent System Operator Corporation. CA ISO is a private, non-profit corporation that manages the high voltage power grid and the wholesale energy market for most of California. CA ISO was created in 1997 as part of an effort to restructure the wholesale electric industry in California. CA ISO is not a regulator. CA ISO’s power over electric transmission utilities derives from the Transmission Control Agreement entered into between CA ISO and the utilities. In the Transmission Control Agreement the utilities agree to, among other things, properly maintain electric transmission lines, provide CA ISO with all current maintenance policies (referred to as a Transmission Owner Maintenance Practices (TOMP)). Failure to comply with the terms of the Transmission Control Agreement could be a breach of contract.

⁵⁸ PG&E abbreviation for Transmission line

Define improvements in our frequency, tools or processes to find efficiencies in the patrols/inspections.

Perform benchmarking and analysis to measure current practices

Determine frequency of patrols/inspections (are we doing more than industry standard)

Analyze current patrols/inspections work methods (i.e. crew size)

Under the heading “Scope”

Patrols and Inspections for Transmission Lines

Frequency of patrols/inspections

Work methods/practices (tools, crew size, processes)

Unit costs measurement

Emails obtained from PG&E established committee members subsequently met with other electrical utilities for the purpose of benchmarking inspection and patrol practices of those utilities and submitted to a national electrical utilities association a patrol and inspection survey to be distributed to and completed by its members. This was done despite the fact the 2010 Quanta Technologies “Structures” Report⁵⁹ included data on patrol and inspection frequency gathered from a survey of 104 electrical utilities worldwide conducted in 2003 by the International Council on Large Electrical Systems, also known as Cigre’⁶⁰. According to the Cigre’ study 74% of the companies utilized “Walking” inspections, 63% utilized “Climbing” inspections and 66% utilized “Helicopter” inspections. The average inspection period for each type of inspection was 1.4 years for walking, 1.5 years for helicopter and 4.2 years for climbing.

The lack of change in inspection and patrol frequency in subsequent revisions of the ETPM indicates that reduction of inspection and patrol frequency was not approved. The committee was also exploring opportunities to reduce costs by finding more efficient work practices. A key component of this inquiry was “Unit cost measurement.” The evidence indicates that PG&E reduced costs by reducing the unit cost for each inspection and patrol. The evidence shows that this was accomplished by reducing the thoroughness of the inspections and patrols.

Review of internal PG&E documents, including emails, and interviews with PG&E personnel determined that the unit cost for inspection and patrol is calculated based upon the time that a troubleman spends inspecting an individual structure. Based upon interviews it was established that each year PG&E determines an average unit cost for each type of inspection or patrol. The unit cost would be translated into time and multiplied by the total number of structures on an individual line. The result would be the time allotted for the inspection or patrol of that transmission line. Prior to the start of each calendar year each transmission region headquarters was provided a list of inspections and patrols, including the allotted time, scheduled for the following year. The inspection and patrol budgets for each transmission region headquarters was based upon the total allotted time for all scheduled inspections and patrols. The evidence established that the Business Finance Department of the Electric Transmission Division sent monthly budget reports tracking spending, both monthly and year to date, for inspection and patrol against budget allocations. The reports were color-coded - red for over budget and green

⁵⁹ In 2009 PG&E hired Quanta to evaluate its electrical transmission system. In 2010 Quanta submitted to PG&E the Transmission Line Component Management Report which included the Structures Report.

⁶⁰ Cigre is an international association of electrical transmission companies located in Paris, France. Cigre was established in 1921 and claims 1250 member organizations from 90 countries.

for under budget. The evidence also established that salary incentives (bonuses) of Transmission Line Supervisors and Transmission Superintendents was, at least partially, based upon compliance with the inspection and patrol budget.

Based upon the evidence, PG&E reduced costs of inspection and patrol by reducing the amount of time budgeted for the inspections and patrols. As expected, the result of these reductions was less thorough and less complete inspections and patrols.

VII. TROUBLEMEN AND TRAINING

a. Creation of the Troubleman Program

The evidence established the inspection and patrol of the transmission lines is done by the “Troublemen.” Similar to the inspection and patrol policy, the position of Troubleman has evolved and changed. Based upon interviews with former PG&E employees from the 1980s, the evidence established the position of Transmission Troubleman was created in the mid-1980s. The earliest reference to troublemen in documents provided by PG&E is found in the 1987 “Routine Patrolling and Inspection of Transmission Lines” policy bulletin.

According to the original Transmission Line Supervisors interviewed, the Transmission Troubleman position was initially intended to be a qualified and experienced transmission line expert. According to one of the original Transmission Lines Supervisors the “intent here was to have people that knew exactly what to look for, how to establish priorities on repairs, and would, would keep it operating.” In addition to the physical demands and climbing requirements of the position, the Troublemen were also expected to take ownership of individual transmission lines and be accountable for the continued safe and reliable operation of that line.

b. Troubleman Training

The 1987 “Routine Patrolling and Inspection of Transmission Lines” policy memo established training requirements for the new Transmission Troublemen⁶¹. In the late 1980s, training for Transmission Troublemen included periodic meetings of all of the Transmission Line Supervisors and Troublemen. At these meetings issues and problems were shared and discussed. According to one of the original Transmission Line Supervisors, a supervisor was designated to document and/or collect all of the examples presented at the meetings in order to compile a training manual for future Transmission Troublemen. According to several of the original Transmission Line Supervisors and Troublemen, an inspection checklist was developed based in part on the information being shared at these meetings. Appendix A to the 1987 “Routine

⁶¹ “It is the responsibility of each Region to ensure proper training of personnel conducting line patrols. This is to be accomplished through use of periodic training classes for all transmission troublemen and any other personnel who may be called upon to patrol. The training should include a review of this bulletin, other T&D bulletins as appropriate, patrol safety, Engineering Drawing 022168, and G.O. 95 requirements. The use of available videotapes (spacer damage, infrared patrolling, etc.) is encouraged. Particular attention should be given to the specific items listed on the code sheet that is provided with this bulletin. The Transmission and Distribution Department will assist the Regions in setting up and conducting the training classes.”

Patrolling and Inspection of Transmission Lines” policy memo appears to be the earliest form of the checklist.

In addition to eliminating routine climbing inspections, reducing the frequency of inspections, and creating an Inspection Frequency Checklist, the 1995 ES Guideline eliminated the training requirement for troublemen. Notwithstanding that, the training requirement was dropped from the ES Guideline, the evidence does show that PG&E had created a Troubleman training program. According to one of the former PG&E employees involved in the creation of the 1995 ES Guideline, one of his duties from 1995 until 2005, was to provide direct annual training on inspection and patrol policies and requirements to all Troublemens. According to this former employee, a decision was made in 2005 to eliminate direct training of Troublemens. Instead, the Transmission Line Supervisors were provided training and expected to train the Troublemens under their supervision.

In December 1997, PG&E filed its first “Transmission Owner Maintenance Practice (TOMP) with the CA ISO⁶². In the TOMP the term “Troubleman” was replaced with the term “Inspector”. According to the definition of terms, an Inspector is a “PG&E employed inspector commonly referred to as “troubleman.”

In the 2002 “Transmission Owner Maintenance Practice” (TOMP) the term Inspector was replaced with “Qualified Company Representative (QCR). According to the Definition of Terms, a QCR is “a person, who by reason of training and work experience is able to complete an accurate assessment of the electric transmission facilities that he/she is asked to inspect.” The required training and work experience necessary to be considered a QCR was never defined.

In the first version of the ETPM (2005), the term Troubleman does not appear. Instead, the ETPM continues the use of the term QCR. The 2005 ETPM definition of a QCR differed from the definition in the TOMP – “A Company representative who, by knowledge, required training, and/or work experience, is able to prepare an accurate and complete assessment of electric transmission facilities.” The definition of a QCR continued to evolve through each revision of the ETPM. According to the 2018 ETPM a QCR is “A company representative, who, by knowledge, required training and/or work experience, is able and allowed to perform a specific job. For the purposes of this manual, QCR refers to an employee qualified to prepare an accurate and complete assessment of electrical transmission facilities.” The ETPM does not define the knowledge, training or work experience required of a QCR.

Every QCR who has inspected or patrolled the Caribou-Palermo line since the publication of the ETPM in 2005 was interviewed. All of the QCRs denied having receiving any formal training on how to perform an inspection or patrol. According to all of the QCRs, any inspection and patrol training was limited to filling out reporting forms and notifications for any issues

⁶² California Independent System Operator Corporation. CA ISO is a private corporation that operates the high voltage grid in California. CA ISO monitors the flow of power in transmission lines that providers use, operate wholesale electricity markets for energy and ancillary services, and maintain transmission maintenance standards. Transmission owners (TO’s) mutually agree to contract with them. CA ISO was created by the State of California in 1997 in an effort to restructure the wholesale electric industry in California.

identified during an inspection or patrol. All of the QCRs asserted that the only training on how to perform an inspection or patrol was via informal mentoring by other, more experienced, Troublemens.

The evidence also established that some of the QCRs performing inspections and patrols of the transmission lines in the Feather River Canyon had little or no transmission line experience before becoming a Troubleman.⁶³

Although PG&E documents and management personnel assert that troublemen receive training on the requirements of the position, the troublemen themselves unanimously denied having received any formal training on conducting inspections and patrols and assessing wear. The troublemen also denied being provided with any records (for example tower schematics) specific to the transmission lines being inspected. The lack of specific training and records was especially significant for troublemen inspecting the Caribou-Palermo line. The hanger holes, according to the original schematics, were 1 1/8" in diameter and the C hooks were 15/16" thick at the contact point. On other Feather River Canyon transmission lines the C hooks were the same size but the hanger holes were significantly larger. The evidence established that the Troublemens' lack of knowledge of the different sized hanger holes contributed greatly to the failure of PG&E to recognize the degree of wear on the C hook on Tower 27/222.

The evidence established that, despite the lofty goals of the originators of the troubleman position, and the designation of QCR by PG&E, by 2007 the inspections and patrols of the Caribou-Palermo line were being conducted by inexperienced, untrained and unqualified troublemen. Both of the "Detailed Ground Inspections (2009 and 2014) and seven of the ten Annual Air Patrols on the Caribou Palermo were completed by troubleman who had little or no prior transmission experience, and no formal training on performing inspections and patrols. This is contrary to the third Revision of the ETPM which requires that the "QCRs must be thoroughly familiar with all of the facilities, equipment, safety rules and procedures associated with the facilities and equipment." Under the ETPM the QCRs are supposed to be looking at components and estimating wear by percentage of material lost. In order to judge material loss a troubleman would have to know what a component looked like at 100%. The majority of the troubleman sent to inspect and patrol the Caribou-Palermo line had no idea what the C hooks and hanger holes were supposed to look like. Because of their lack of knowledge, experience, and training, the troubleman could not have been expected to identify the wear. The overwhelming

⁶³ One former troubleman assigned to the Caribou-Palermo line admitted that although he was a journeyman lineman, he worked in distribution (almost 30 years) and had never worked as a transmission lineman prior to becoming a transmission troubleman. Another troubleman assigned to the Caribou-Palermo line was also a distribution lineman prior to becoming a transmission troubleman and admitted his only experience with transmission lines above 60kV was during his apprenticeship. According to a former Table Mountain HQ Transmission Line Supervisor, this Troubleman had so little experience with transmission lines that he was assigned to work with the transmission lineman until the Supervisor was forced by the union to allow the troubleman to conduct inspections and patrols. Another former troubleman assigned to the Caribou-Palermo line had worked on transmission lines as a journeyman lineman until PG&E split distribution and transmission in the mid-80s. The former troubleman worked in distribution exclusively for over twenty years before becoming a transmission troubleman.

evidence clearly established that troublemen and linemen inspecting and patrolling the Caribou-Palermo line did not meet the standards established in the ETPM.

VIII. FAILURES IN MAINTENANCE, REPAIR AND REPLACEMENT RECORD KEEPING ON THE CARIBOU-PALERMO LINE

As part of the Camp Fire Investigation, all maintenance/repair/replacement records for the Caribou-Palermo line were requested and obtained from PG&E. Any and all records received from PG&E pertaining to Towers 27/222 and 24/199 were reviewed in depth. The only records of any maintenance/repair/replacement located for these towers related to the replacement of parallel groove connectors⁶⁴ {[Attachment – parallel groove connector](#)} on each tower in 2016.

a. Hanger Brackets

During the investigation it was observed that “hanger brackets” (bolted add-on brackets for hanger plates for the hole that the C hooks hung from) {[Attachment – add-on hanger bracket](#)} had been added to the transposition arms of towers 27/222 and 24/199. Similar hanger brackets were not found on other transposition towers and the brackets were not shown on the original plans for the transposition arms. After being removed from the towers, the transposition arms were examined. Some of the original hanger holes displayed significant “keyhole” wear. {[Attachment – significant keyhole wear](#)} PG&E was unable to produce any records of when, why, and by whom the hanger brackets had been added. Based upon the keyhole wear observed on the original hanger holes, the only reasonable conclusion to be drawn was someone at PG&E at some time in the past had noticed the keyhole wear and was concerned enough to take action.

b. Parallel Groove Connectors

As previously mentioned, during the inspection of Tower 24/199 investigators noticed a parallel groove connector on the jumper conductor. {[Attachment – parallel groove connector on 24/199 jumper](#)} It appeared to investigators that, at some previous time the jumper conductor had been shortened and spliced together using the parallel groove connector. Investigators also observed that the right phase insulator string appeared to be less aged than the left phase insulator and, as a result of the shorter jumper conductor, was not hanging plumb. From the ground, investigators also observed black marks on the tower leg nearest the right phase insulator string. On the ground below Tower 24/199, investigators found an old insulator string. The old insulator string was complete except for the C hook.

PG&E was unable to produce any records of when, why, and by whom the parallel groove connector had been added to the jumper. No explanation was provided as to why the parallel groove connector on the jumper conductor was not replaced when all of the other parallel groove connectors in the tower were replaced in 2016. PG&E was also unable to produce any records as to the replacement of the insulator. Based upon the observations of investigators, the only reasonable conclusion that could be drawn is that at some time in the past the jumper conductor made contact with the tower leg, causing the blackening observed on the tower leg. This damaged the jumper conductor, necessitating the removal of a portion and replacement of the

⁶⁴ Parallel groove connectors are used to connect two parallel pieces of power line (conductor).

insulator. It was also clear, based upon the change in the wear pattern on the C hook observed by the FBI metallurgist, the C hook was not replaced when the jumper conductor was shortened and the insulator changed.⁶⁵

Although no records were found to explain why, the evidence established that as part of a scheduled Detailed Ground Inspection in 2009, the troubleman assigned to complete the inspection of the Caribou-Palermo line was instructed to document all towers with parallel groove connectors and create work orders for replacement of the parallel groove connectors. In total, the "Transmission Line Inspection Datasheet" completed by the troubleman as part of the report of the 2009 Detailed Ground Inspection, lists 85 towers for "Rpl Connectors." For each tower, a notification number was assigned and a "Corrective Work Form" was generated. Copies of these Corrective Work Forms for towers 24/199 and 27/222 were obtained during the investigation. Replacement of the parallel groove connectors was designated, according to the Corrective Work Forms as "Priority F – Schd Compl Yr 1+."⁶⁶ At the time the Corrective Work Forms were created, the April 2009 revision of the ETPM was in effect. The priority code F did not exist in the 2009 ETPM. The priority codes listed in the 2009 ETPM were A, C, G and P. Prior to the April 2009 revision of the ETPM, numerical (as opposed to letter) priority codes were used. The priority code F did not come into existence until the 2011 revision of the ETPM. According to the 2011 version of the ETPM, Priority Code F is defined as "Corrective action is recommended within 24 months from the date the condition is identified, except for nominations notifications or system wide initiatives identified by Asset Strategy (e.g., bridge bonding, shunt splicing), which can have due dates beyond 24 months."

According to the Corrective Work Forms for Towers 27/222 and 24/199, the parallel groove connectors were re-assessed during the 2011 Annual Air Patrol. A note dated August 16, 2011, states "per (troubleman) on 8/1/11 during patrol OK to move out 2 yrs." On November 10, 2009,⁶⁷ PG&E Applied Technology Services (ATS)⁶⁸ published a Lab Test Report entitled "Analysis of bolted aluminum transmission connectors from various PG&E sites." Based upon the ATS Lab Test Report the problems identified were internal to the connector. There is nothing in the report documenting any outward signs of the interior wear. The question of how a troubleman flying in a helicopter could assess the wear inside the bolted connectors was never answered⁶⁹.

A note on both Corrective Work Forms dated January 10, 2012, states "move required end date to 11/30/2015." No explanation is given as to why the required end date was moved back three

⁶⁵ According to PG&E and all transmission lineman interviewed, it was standard practice to replace the used C hook when replacing an insulator string. While inspecting the Caribou-Palermo line in February and March 2019 investigators noted another tower in which the insulator strings had recently (post Camp Fire) been changed but the C hooks were re-used.

⁶⁶ In a written response to a CPUC data request PG&E wrote "Between 10:41 a.m. and 10:42 a.m. on October 4, 2009, all 85 notifications were changed from Priority Code G to Priority Code B conditions by {name redacted}, the same PG&E contractor who changed the Priority Code on LC Notification 103995542. Between 5:38 p.m. and 5:39 p.m. on October 27, 2009, all 85 notifications were changed from Priority Code B to Priority Code F conditions by {name redacted}."

⁶⁷ Approximately three months after the completion of the 2009 Detailed Ground Inspection of the Caribou-Palermo line.

⁶⁸ Applied Technology Services is PG&E's internal engineering and scientific research lab. ATS was previously known as the PG&E Department of Engineering Research.

⁶⁹ Interior wear on parallel groove connectors may cause the connector to show excessive heat in an infrared inspection. None of the Annual Air Patrols included infrared inspections.

years. PG&E addressed this issue in a Data Response to CPUC. According to PG&E's written explanation, the Corrective Work Forms were initially assigned priority code G – required repair/replacement within 12 months. On October 4, 2009, the priority code was changed to Priority B – required repair/replacement within three months in the PG&E SAP system. According to PG&E, the priority code was changed again on October 27, 2009, to Priority F. Also according to PG&E's written response to the CPUC, because the replacement of the connectors was a Priority F and was “for nominations[,] notifications[,] or systemwide initiatives identified by Asset Strategy (e.g., bridge bonding, shunt splicing), which can have due dates beyond 24 months” no documentation or reason was required for re-assessment. The quoted language is from the 2011 version of the ETPM. The 2009 version of the ETPM stated “Any reassessment must have sound business or technical supporting reasons and documentation on file and recorded in SAP.” No explanation was ever provided as to how and why a priority code and exception which did not come into existence until January 2011, was being applied in October 2009.

This raised serious questions as to the accuracy of the few maintenance/repair/replace records PG&E was able to locate. The final note on the Corrective Work Form is dated June 29, 2016, and reads that the connectors were replaced on June 18, 2016. There is no record as to why the parallel groove connector on the jumper conductor of Tower 24/199 was not replaced.

In total, almost seven years elapsed between the identification of the defective parallel groove connectors on the Caribou-Palermo line and the replacement of those connectors. At least ten years elapsed from the time replacement of parallel groove connectors were identified as a fire⁷⁰ mitigation. No valid explanation for the extended amount of time was ever provided.

c. The “Deteriorated Transmission Equipment Replacement Program.”

In 2007, PG&E introduced the “Deteriorated Transmission Equipment Replacement Program.” According to internal documents, the Deteriorated Transmission Equipment Replacement Program was included in PG&E's capital spending five-year plan and was funded through 2015.

PG&E was unable to produce any documentation as to the budget or eligibility requirements for the Deteriorated Transmission Equipment Replacement Program. Although the name of the program implied that the program was established to replace deteriorated equipment, no records of funding or eligibility requirements for the program were found. During interviews and testimony of PG&E employees familiar with the program, it was simply a “bucket” of money available to fund capital improvements on transmission lines regardless of the condition of the line or its components. Based upon the evidence the name Deteriorated Transmission Equipment Replacement Program did not accurately depict the true nature of the program.

⁷⁰ Parallel groove connectors were identified as a fire risk in the October 2006 Risk Analysis of Urban Wild Land Fires. See section XVII – “Knowledge of Risk/Consequence” for details re: the 2006 Risk Analysis.

d. The Caribou-Palermo 7/55-8/64 Replacement Towers project

A portion of the Caribou-Palermo line was nominated for replacement through this program by the Maintenance and Construction Engineer⁷¹ (M&C Engineer) assigned to the North Area⁷². According to a PG&E internal budget document “Request for Advance Authorization of Expenditures in Accordance with Capital Expenditures Policy,” \$800,000 was initially requested “for preliminary engineering and purchase of long lead-time material to replace conductor and tower structures on a section of the Caribou-Palermo line between structures 7/55 and 8/64.”⁷³ {[Attachment – Google Earth Map showing 7/55-8/64](#)} The initial Advance Authorization specifically stated:

“There have been multiple conductor failures on this line due to conductor being annealed⁷⁴ and parting.⁷⁵ Since 2002 there have been 8 event reports created on this line. 5 of which was equipment related failures.”

“It is very time consuming and costly to correct any failures that occur in this dilapidated line section, especially during the winter months when failures are more likely.”

“The probability of that failure is imminent due to the age of both the towers and the conductor.”

“The intent of this project is to be pro-active and replace this deteriorated line section in a controlled and planned manner instead of under emergency conditions.”

The initial Advance Authorization for \$800,000 was not approved by PG&E’s Electric Asset Strategy Division, and instead, upon re-writing and re-submission, was reduced to \$200,000 by the then Director of the Electric Asset Strategy Division. The second Advance Authorization did not include the descriptor “dilapidated” or the prediction of imminent failure but did state: “Replace deteriorated structures, conductor, insulators, and hardware between structures 7/55 and 8/64.” The second Advanced Authorization was approved. The project was named the “Caribou-Palermo 7/55-8/64 RPL Towers” project.

A “Project Manager”⁷⁶ was assigned to this project. According to internal PG&E documents, between 2007 and 2009 the Project Manager spent almost \$800,000 conducting engineering studies of the proposed new tower sites and preparatory work, including building a road to allow access to the proposed new tower sites. In 2009, the project was canceled as, according to internal emails, “this project fell below the cut line for 2010 approved projects.” According to a 2014 email from a member of PG&E’s Capital Accounting Department the project “was canceled due to Asset Management’s reprioritization and is not expected to be resumed.” During an email chain, starting on November 2, 2009 and ending on January 22, 2010, the Project

⁷¹ Although the job title was Engineer this person was not an engineer and had no engineering education or experience. This person described his position as “You’re kind of a liason between the field crews and both civil and electrical engineers.”

⁷² Includes Sacramento District, Table Mountain District, Eureka District and Lakeville District

⁷³ On the southside of the Feather River between Caribou Road and Beldon.

⁷⁴ According to the M&C Engineer “annealed usually means a little more brittle.”

⁷⁵ The M&C Engineer also identified the conductor as copper and not aluminum because “we wouldn’t put shunts on aluminum.”

⁷⁶ A project manager is a person assigned to supervise a specific project.

Manager made the following arguments for continuing and completing the Caribou-Palermo 7/55-8/64 RPL Towers project to the Program Manager⁷⁷ assigned to that major work category:

“If it is not funded for permitting etc., we could be picking up these towers out of the Feather River Canyon when they fall over.”

“We have already notified FERC⁷⁸ of the project and it will not look good if towers we have identified as deteriorated fall over in the canyon because we did not perform the work due to funding.”

Despite the representations of the Project Manager the project was not reinstated by the Program Manager.

During interviews with investigators and testimony, the author of the Advance Authorizations⁷⁹ and the Project Manager separately asserted they had no factual basis for the statements about the condition of the Caribou-Palermo line towers and downplayed the statements as exaggerations made while advocating for a project.

e. The Rock Fire

A Corrective Work form⁸⁰ was located for replacement of a failed connector on Tower 11/87 in September of 2008. The Corrective Work Form was generated based upon a non-routine patrol of the Caribou-Palermo line generated by a power interruption on the line on September 30, 2008.

On September 30, 2008, at approximately 2:30 p.m., the Plumas National Forest Headquarters received a report of a fire near the Rock Creek Dam. {[Attachment – Google Earth map of Rock Creek Dam](#)} The fire was named the Rock Fire. This fire burned approximately five acres in the Plumas National Forest. Origin and Cause investigators from the United States Forest Service (USFS) investigated the fire and determined the origin to be directly below Tower 11/87 of the Caribou-Palermo line. The Rock Fire was determined to have been caused by an equipment failure, specifically the failure of a connector on a jumper line, on Tower 11/87. PG&E records obtained by the USFS investigators showed PG&E experienced an interruption on the Caribou-Palermo line at approximately 2:02 p.m. on September 30, 2008. No records of a root cause investigation of the failure of the connector were found. Consistent with PG&E’s practice, as supported by the evidence, PG&E did not conduct climbing or aerial inspections on other Caribou-Palermo line towers with similar connectors.

f. Tower Collapse

On December 21, 2012, a catastrophic failure occurred on the Caribou-Palermo line that generated six corrective work forms. Five towers, 22/187 through 23/191, collapsed and a sixth

⁷⁷ PG&E divides electrical transmission work (repair/replace/maintain/improve) into “major work categories” (also referred to by PG&E personnel as budgetary “buckets”). The program manager oversees all projects within a major work category.

⁷⁸ It appears that this is a reference to a Federal Energy Regulatory Commission (FERC) rate case. In support of requests for rate increases PG&E files a rate case with FERC. To justify the proposed rate increase in the rate case PG&E lists planned capital projects with cost projection. Projects are generally forecasted five years in the future.

⁷⁹ A former Maintenance and Construction (M&C) engineer.

⁸⁰ A PG&E form generated by field personnel to document and describe problems, defects, wear or other conditions on transmission assets requiring maintenance/repair/replacement.

tower, 23/192, {[Attachment – Google Earth map of towers](#)} was badly damaged to the extent that it needed to be replaced.

A PG&E Civil Engineer investigated the incident and did not author a report, but did communicate his conclusions in an email. He determined Tower 22/188 initially collapsed causing a domino effect that pulled down towers 22/187, 22/189, 23/190 and 23/191. He concluded the collapse of Tower 22/188 was caused by the failure of the “stub angles”⁸¹ possibly due to strong wind and/or icing wet ground conditions. No formal “Root Cause Analysis” was conducted. Although he concluded his analysis by stating “Due to this failure phenomenon, it would be advisable to inspect towers with similar line angle on this line to ensure no other foundations had experienced similar uplift during same wind storm.” The evidence established none of the other Caribou-Palermo line tower foundations were inspected. Again, this is consistent with PG&E’s practice of not following up on clearly established potential safety and/or maintenance issues.

The six towers were temporarily replaced by a “Shoe Fly,” consisting of fifteen wooden poles, constructed along Camp Creek road. {[Attachment – Google Earth map of Shoe Fly](#)} The Shoe Fly was completed by January 30, 2013. The Shoe Fly remained in service until the six towers were permanently replaced. The six towers were eventually, permanently, replaced by modern H-Frame tubular steel pole structures in 2016.

g. Center Phase Conductor on Tower 24/200

On January 10, 2014, a PG&E employee doing “crew work” documented a problem on the center phase conductor on Tower 24/200. Pictures attached to the Corrective Work Form appear to show a damaged conductor. In addition, the photos appear to show damage to the corona shield⁸² (part of the hot end attachment hardware) and melting on the conductor below the corona shield. Another photograph appeared to show a piece missing from another section of the conductor and blackening on the conductor a few inches from that missing piece. The Corrective Work Form stated the conductor was repaired on 5/1/2014, but did not indicate that either the hot end attachment hardware generally, or the corona shield specifically, were replaced. No records were found indicating a root cause analysis was ever done to determine the cause of the damage to the conductor and corona shield.

h. Broken J Hook

On October 19, 2016, a J hook in Tower 11/99 broke when a member of a PG&E contractor painting crew attempted to use a cross brace attached to the J hook for support. According to the PG&E report on the incident “[I]t appears as though about 20% of the thickness of the bolt had been compromised through corrosion.” Although the incident was reported to and investigated by PG&E, nonetheless true to the company’s practice, the failure of the J hook did not cause inspections of J hooks in other similar towers.

⁸¹ The stub angles connect the foundation to the base of the tower.

⁸² Corona discharge is the leakage of electric current into the air around high voltage conductors. A corona shield is a disc of conductive material designed to absorb the destructive corona discharge and protect the attachment hardware.

IX. INSPECTION AND PATROL OF THE CARIBOU-PALERMO LINE

Based upon PG&E records and flight records obtained from their contracted helicopter company, the evidence established inspections and patrols of the Caribou-Palermo line did not comply with the standards set forth in the ETPM and did not meet the requirements of the law or the regulatory agencies.

Routine inspection and patrol records for the Caribou-Palermo line were obtained back to 2001. According to PG&E, no inspection or patrol records prior to 2001 could be located. Based upon the inspection and patrol records the evidence established that the Caribou-Palermo line was subjected to "Detailed Ground Inspections" in 2001, 2003, 2005, 2009 and 2014. Based upon the inspection and patrol records the evidence established the Caribou-Palermo line was subjected to "Annual Aerial Patrols" in 2001, 2002, 2004, 2006-2008, 2010-2013, 2015-2018. There is no record of any climbing inspections, detailed ground inspections above 10' or aerial inspections conducted on the Caribou-Big Bend section of the transmission line. All of the inspection and patrol records were reviewed and all of the troublemen/linemen who conducted the inspections and patrols were interviewed.

Because it was the last "Detailed Ground Inspection" of the Caribou-Palermo line prior to the Camp Fire, the 2014 Detailed Ground Inspection became a focus of the investigation. The 2014 Detailed Ground Inspection was memorialized in a 60-page "Report" which included an "Operational Control Ticket," a "Transmission Line Data Inspection Sheet," a "Priors" list⁸³ and a "Transmission Object List."⁸⁴ According to the report, the detailed ground inspection was completed between August 5, 2014 and August 13, 2014 by a troubleman and a lineman. Four issues that necessitated the creation of a Corrective Work Form were documented in the report: flashed insulator bells were found on tower numbers 21/180A, 26/215 and 16/129 and a broken insulator bell was observed on tower number 27/226. The report was signed by both the troubleman and the lineman on August 28, 2014 and the Transmission Line Supervisor on September 3, 2014. The evidence established that the lineman was assigned to "assist" with the inspection because the troubleman, who was nearing retirement, was no longer physically able to hike/climb to many of the towers on the Caribou-Big Bend section of the line. The evidence also established that the troubleman and lineman were also assigned to take line clearance measurements (which included date, time and air temperature) at pre-determined intervals along the transmission line to determine compliance with new NERC clearance guidelines.

The 2014 Detailed Ground Inspection Report was subjected to intense scrutiny. PG&E records, including troubleman and lineman daily timecards, were obtained for comparison against the report. The evidence established the following:

⁸³ A list of previously documented issues pending an open corrective work form.

⁸⁴ The Transmission Object List lists every structure on the transmission line. In 2014 each structure was identified by its tower number, a SAP equipment ID number, a physical description of the structure and the GPS coordinates for the structure. For each structure the list has an Inspection Result section in which the QCR checks the applicable box and a notes section for the QCR to write any notes about the structure or record any problems/issues/defects observed.

- 1) The detailed ground inspection started on July 24, 2014 and ended on August 27, 2014. Although the report states that the physical inspection of the Caribou-Palermo occurred on August 5, 6, 7, 13, and 14; emails, records and interviews established that an unknown, and undocumented number of towers was inspected on August 27.
- 2) In addition to the troubleman and lineman, four linemen whose names do not appear in the report assisted with the inspections on August 27, 2014. According to emails and helicopter records, prior to August 27, 2014, the Transmission Line Supervisor scheduled a helicopter to fly the lineman to difficult to reach towers. Four additional linemen were assigned to assist with inspections on August 27, 2014. No records indicate which towers were inspected on August 27, 2014 and which lineman inspected which tower.
- 3) The allotted time⁸⁵ for the 2014 Caribou-Palermo Detailed Ground Inspection was 89.5 hours. Based upon time cards, 121 hours were initially billed to the Caribou-Palermo Detailed Ground Inspection. After the inspection was complete, a secretary changed billing records to re-assign hours billed to the inspection of the Caribou-Palermo line to lower the total hours billed to the Caribou-Palermo Detailed Ground Inspection to 91 hours.
- 4) The lineman assigned to assist with the 2014 Detailed Ground Inspection of the Caribou-Palermo line had previously completed some troubleman training but focused mainly on "Switching." The lineman did not recall receiving any training on performing inspections and patrols other than informal training by troublemen. No evidence was found to establish the four other linemen who performed inspections had previously completed any training on inspection and patrol. Additionally, the evidence established the lineman did not complete his inspections under the supervision of the troubleman. The evidence established that the troubleman divided the Caribou-Palermo line between himself and the lineman, and each conducted an independent inspection of the towers in the assigned section. The lineman was assigned to inspect the Caribou-Big Bend section of the line.
- 5) Recall the six steel towers numbered 22/187 through 23/192 ceased to exist in December 2012 due to the catastrophic failure and were replaced by a "Shoe Fly" consisting of 15 wood poles in January 2013 until the towers were permanently replaced in 2016. However, according to this 2014 report, those missing towers were physically inspected in August 2014, including a previously documented issue on tower 22/188. The previously documented issue on Tower 22/188 was the replacement of the parallel groove connectors identified during the 2009 Detailed Ground Inspection.
- 6) The lineman assigned to assist with the 2014 Detailed Ground Inspection of the Caribou-Palermo line was not trained to complete the ground clearance

⁸⁵ The amount of time budgeted for each inspection/patrol. See section VI – "Reduction of Unit Costs for Inspections and Patrols" and subsection A – Expense Budget of section XI – "Budgetary Considerations"

measurements. According to PG&E policy, clearance measurements must include the measurement, and the date, time and air temperature when the measurement was taken. Although the report shows the clearance measurements were done concurrently with the inspection, the evidence established they were not. The lineman said he was not initially instructed to perform the clearance measurements and did not do so during his initial inspection. He went on to say it was not until after he had completed his inspection of the Caribou-Big Bend section of the line and submitted his report that he was told to perform clearance measurements. He stated he was ordered⁸⁶ to return to the field and perform the clearance measurements. He stated he was not initially told he needed to record the time of each measurement. According to the lineman, he returned to the Caribou-Big Bend Section of the line with the "Transmission Object List" and obtained the measurements. He stated he then added the measurements and air temperature to the already completed "Transmission Objects List." He then submitted his report a second time and was informed of the requirement to record the time of each measurement. He said that he then estimated the time he had taken the measurements and added those time estimates to his report. The result was the dates and times of the clearance measurements documented in his reports were not accurate.

Written documents clearly establish the Table Mountain Transmission Line Supervisor knew the dates inspected on the Transmission Object List were wrong. Written documents also clearly established that he knew that for some of the towers the name of the inspector conducting the inspection was wrong. The evidence also establishes he knew the line clearance measurements did not occur on the dates listed on the Transmission Object List. Despite specific knowledge the report was not accurate; the Transmission Line Supervisor approved and signed the report.

Although the investigative team did not scrutinize other patrols and inspections of the Caribou-Palermo line to the extent devoted to the 2014 Detailed Ground Inspection, similar issues were found in other inspection and patrol reports. The 2009 Detailed Ground Inspection of the Caribou-Palermo line was conducted by the same troubleman who conducted the 2014 Detailed Ground Inspection. There is evidence that a lineman, who was not mentioned or listed in the 2009 report, assisted with that inspection also.

The 2012 Annual Air Patrol Report was also found to be inaccurate. In 2012, another troubleman, was assigned to complete the patrol. According to the date-inspected line on the report, this troubleman started his patrol on August 6, 2012. The patrol was interrupted at Tower 16/130 due to "fire." The remainder of the patrol was completed by yet another troubleman. However, the report only lists the assigned troubleman and lists the "Date Inspection Completed" as August 6, 2012. In an email dated August 13, 2012 from the assigned troubleman to the Transmission Line Supervisor, the troubleman stated he would be going out on medical leave and had updated the subsequent troubleman on the "caribou-palermo partially flown on 8-6...not compl't'd do to the fire in the canyon." According to the assigned troubleman, he was

⁸⁶ The lineman was not clear about who ordered him.

unable to complete the patrol prior to going out of medical leave and the another troubleman completed the patrol sometime after August 21, 2012.

One former troubleman admitted he did not like flying the Feather River Canyon transmission lines and, whenever possible, assigned an available lineman to complete the routine air patrols. According to the former troubleman, after the lineman completed the air patrol the troubleman would use the lineman's notes to complete the patrol report and submit the report as if the former troubleman had personally completed the patrol.

The evidence also established during the 2013 and 2015 Annual Aerial Patrols of the Caribou-Palermo line, which were completed by different troublemen, towers 22/187 through 23/192, which ceased to exist in December 2012, were "inspected" and the pre-existing condition (parallel groove connectors) on Tower 22/188 was checked.

The inspection and patrol records clearly established that between 2001 and 2018 aerial patrol by helicopter was the primary method of inspection and patrol for the Caribou-Palermo line. As such, the thoroughness of aerial patrols of the Caribou-Palermo line was examined closely. The evidence established the thoroughness of the aerial patrols declined through the years.

Troublemens assigned to inspect the Caribou-Palermo line from 1987 through 2018 were interviewed regarding the thoroughness of air patrols. A former troubleman who conducted air patrols prior to 2001, described helicopter patrols of the Caribou-Palermo line as taking one to one and half days. One former troubleman explained his protocol for aerial patrols included instructing the pilot to fly low enough and slow enough that the troubleman could step out onto a tower if necessary. On a report of the 2001 Annual Air Patrol was a handwritten note "10 hrs." According to the former troubleman who performed the 2001 air patrol, 10 hours was the approximate flight time for the patrol of the Caribou-Palermo line.

During the investigation, helicopter flight records from 2011 through 2018 for Caribou-Palermo line aerial patrols were obtained from a local helicopter company contracted by PG&E to assist with aerial patrols. According to that company, flight records and billing records prior to 2011 no longer existed.

In 2011, flight records document 3.2 hours for the aerial patrol of the Caribou-Palermo line. In 2012, the aerial patrol of the Caribou-Palermo line was interrupted by fire and complete records for the patrol were not located.⁸⁷ In 2013, a troubleman completed aerial patrols of the Caribou-Palermo line, Caribou-Westwood and Palermo-Pease transmission lines (990 total structures) in 7.6 hours. In 2015, a troubleman completed the aerial patrols of the Caribou-Palermo line, Cresta-Rio Oso, Oroville-Thermalito-Table Mt #1, Oroville-Thermalito-Table Mt #3, Oroville-Table Mt (CDWR), Hamilton Branch-Chester, Collins Pine Tap and Palermo-Pease transmission lines (1,430 total structures) in 6.1 hours. In 2016, a troubleman completed the aerial patrols of the Caribou-Palermo line, Grizzly Tap, Cresta-Rio Oso, Butte Valley-Caribou and Plumas Sierra Tap transmission lines (1050 total structures) in 6.8 hours. In 2017, a troubleman completed the aerial patrols of the Caribou-Palermo line, Butt Valley-Caribou and Hamilton Branch-Chester transmission lines (813 total structures) in 4.9 hours. In 2018, a troubleman completed the aerial

patrols of the Caribou-Palermo line, Grizzly Tap, Grizzly Tap SVP, Plumas-Sierra Tap, Butt Valley-Caribou and Caribou #2 transmission lines (1708 total structures) in 5.7 hours.

A retired PG&E employee, who spent over 30 years in the Electrical Transmission Division reviewed the flight records. This former employee had been involved in the drafting of the 1995 inspection policy memo and the ETPM and the troublemen training program from 1995 to 2005. This former employee stated the flight records reflected the aerial patrols are "fly bys" not patrols or inspections. One recently retired troubleman admitted when doing aerial patrols he was only confirming the structures and components were "standing upright".

All of the troublemen who performed aerial patrols on the Caribou-Palermo line since 2012 and the current Transmission Line Supervisor assigned to Table Mt. Headquarters, were shown photographs, both the January 31, 2019 BCDA photographs and PG&E WSIP⁸⁸ photographs, of worn C hooks and hanger holes. All of the troublemen consistently denied it was possible to see and assess the wear on the C-hooks and hanger holes during aerial patrols.⁸⁹ The Transmission Line Supervisor asserted that, based upon wind and topography, it was not safe for the helicopters to fly low enough and slow enough to enable the troublemen to see and assess the C-hooks and hanger holes. The troublemen also denied it was possible to assess the wear on the C hooks and hanger holes during a detailed ground inspection. The ETPM corroborates the troublemen on both. According to Table 2 in section 1 of the ETPM the best view positions for assessing insulators and hardware do not include ground inspections nor aerial patrols. Only climbing inspections or lifted bucket inspections above 10 feet in the air would give the appropriate best view for assessment of insulators and their connectors.

Since the enactment of the ES Guideline E-TSL-G013 in 1995, **climbing inspections have only occurred "as triggered."** The specific language regarding triggers has changed very little since 1995. Appropriate "triggers" for climbing inspections were covered in section 2.1.3 of the ETPM (emphasis added):

Triggers are specific conditions that require follow-up inspections and/or maintenance scheduled by the supervisor, independent of the routine schedule.

The following triggers can be applied to one unit of inspection or many units, either grouped or spread over a line section/area:

- **Component defects identified by inspection**
- **Component failure (including failure in like components)**
- **Components proven defective by testing**
- **Wire/structure strike**
- **Burned area or high fire hazard**
- **Failures caused by natural disaster or storm**
- Third-party observations and complaints
- Marginal capability components of a re-rated line section

⁸⁸ Wildfire Safety Inspection Program – an "enhanced" post Camp Fire inspection of all PG&E electric transmission structures. See section X – Comparison of Caribou-Palermo With Other Transmission Lines for details on the WSIP and analysis of WSIP results.

⁸⁹ All of the troublemen also denied knowing the sizes of the hanger holes and C hooks. Therefore, even if the troublemen had looked at the C hooks and hanger holes, without knowledge as to their respective sizes, the troublemen would not have been able to assess wear.

- Known, recurring conditions that jeopardize line integrity
- Suspected vegetation clearances less than required or less than legal vegetation clearances, or concerns about fast growth of vegetation

Despite the facially mandatory language, “specific conditions that require,” many PG&E employees who were interviewed, including electric transmission troublemen, linemen and support personnel expressed an understanding that an occurrence or discovery of a specific condition did not necessarily trigger climbing inspections. The evidence clearly established that on the Caribou-Palermo line, PG&E interpreted the mandate of “require” as discretionary. The maintenance/repair/replacement records established that since 2007 many of the “required” triggers occurred. Some of the triggers (e.g. failures caused by storm, fires under the transmission line) have occurred multiple times. The evidence established the following triggers documented in PG&E records between 2007 and 2018:

- 2008 Lightning Complex fires (burned under and around transmission line)
- 2008 Rock Fire (started by failure of connector on Caribou-Palermo line Tower 11/87)
- 10/17/08 - failure to underarm jumper
- 2009 identification of parallel groove connectors on 83 towers (defective components)
- 2009 ATS Lab Test Report identifying defects in installation of parallel groove connectors
- 2012 fire which caused delay of 2012 Annual Air Patrol
- 2012 tower collapse (defective component)
- 1/10/14 - Unknown Failure/Locked Out causing interruption, no cause determined
- 2/7/15 – storm damage
- 12/10/15 Sustained outage. Found center phase guy wire tie down broken. North phase top insulator unpinned @ structure 23/194.
- 10/19/16 failure of a J hook in structure 11/99.
- 1/9/17 Storm related emergency due to (6) lockouts on the Caribou Palermo line. Non-routine air due to line locked out, crew found problem of floating center phase conductor at tower 24/200.
- 1/10/17 storm damage, conductor repaired.
- 2/1/17 storm related interruptions. “Non-routine airs due to momentary outages, fault location 10/79, found hold insulator hold down parted at structures 8/67 and 11/89, will create notifications for repairs.”
- 2/21/17 “Non-routine air patrol due to storm related momentarys [sic]. After several relays GCC placed non-test on line and line went to lock-out.” “Per [Troubleman] on 2/21/17 during storm damage: Air patrolled [sic] fault area and found hardware loose on tower 3/28 but not sure if this was part of the problem, re-energized line and held.”
- 3/2/18 “Investigate relay that occurred on 3/1/18 @11:43. Found damaged insulator on structure 37/301. Created notification to replace insulators.”

Between January 1, 2017 and February 21, 2017 there were at least nine documented storm related interruptions on the Caribou-Palermo line and at least six equipment failures. Based upon the evidence neither the individual events nor the cumulative events were deemed sufficient to trigger climbing inspections on the Caribou-Palermo line.

Although several PG&E transmission line employees referred to the ETPM as “The Bible” and asserted strict compliance with the standards and policies of the ETPM, the totality of the evidence shows that on the Caribou-Palermo line, the ETPM was not followed. Because PG&E had inexperienced, untrained and uninformed personnel conducting inspections and patrols under unrealistic time constraints, the inspections and patrols did not spot defects and wear.

On June 26, 2018, a PG&E work order requiring climbing inspections of all Caribou-Palermo line structures was issued by a PG&E Tower Department supervisor. The supervisor was interviewed. The supervisor could not provide any reason or rationale for the work order. Specifically, the supervisor stated that the work order was requested by someone else and his job was simply to compile the information into a template report and forward the template report to the appropriate work group.

PG&E was unable to provide any further information. “PG&E’s inspection records do not identify the factors that led to the selection of the Caribou Palermo 115 kV Transmission Line as one of the lines selected for climbing inspections as part of this effort. PG&E understands that the age of lines was a factor that was considered in their selection.”⁹⁰

Beginning in September 2018 climbing crews from the PG&E Tower Department climbed and inspected 80 towers on the Caribou-Palermo line. The vast majority of the towers climbed and inspected were on the Palermo-Big Bend section of the Caribou-Palermo line. “PG&E understands that the reason these approximately 80 towers were selected first and the order in which they were inspected was determined by the Tower Department based on various considerations, including weather conditions and crew availability.”⁹¹

All of the towers climbed in September and October 2018 were subjected to WSIP enhanced inspection starting in December 2018. The WSIP enhanced inspections documented problems and defects on numerous towers that were not discovered/detected/documented during the September 2018 climbing inspections.

The fact that PG&E has no explanation for how or why or by whom the decision to conduct climbing inspections was made is disturbing but not unusual. Numerous decisions and policies were investigated. As to many decisions and policies, PG&E was unable to provide any documentation as to who made the decision, how the decision was made and upon what the decision was based. This inability to determine who made decisions and upon what those decisions were based, frustrated efforts to identify individuals potentially personally liable for policies that lead to the conditions which caused the Camp Fire.

⁹⁰ PG&E written response to CPUC Data Request 008, Question 1.

⁹¹ PG&E written response to CPUC Data Request 008, Question 1.

X. COMPARISON OF CARIBOU-PALERMO WITH OTHER TRANSMISSION LINES

Although the undetected problems on the Caribou-Palermo line were bad, the evidence established that the Caribou-Palermo line was only marginally worse than other comparison transmission lines. Records from post-Camp Fire enhanced inspections of other, similar lines clearly established PG&E's problems were systemic as opposed to local.

The evidence established by early afternoon on November 8, 2018, a PG&E troubleman on an emergency air patrol of the Caribou-Palermo line had identified and photographed the equipment failure on Tower 27/222. Within six days PG&E initiated climbing inspections of the Caribou-Palermo line and other similar transmission lines. The initial inspections were named the "Nine Lines Inspections."⁹² PG&E records established that by November 14, 2018 the inspections were underway. The evidence showed the inspectors were specifically focused on C hook and hanger hole wear. By early December the Nine Lines Inspection program was superseded by the Wildfire Safety Inspection Program (WSIP). The WSIP involved enhanced (climbing and drone) inspections of all electrical transmission lines within higher wildfire risk areas. The WSIP inspections "identified thousands of conditions requiring repairs on PG&E's system that had not been previously identified."⁹³

As a result of the WSIP, and at the request of the CPUC, an independent engineering company named Exponent was retained to review the data from the WSIP. According to its website "Exponent is a multi-disciplinary engineering and scientific consulting firm that brings together more than 90 different disciplines to solve engineering, science, regulatory and business issues facing our clients." Based upon historical records, Exponent has a longstanding relationship with the CPUC and has conducted failure analysis investigations of previous PG&E incidents.

According to interviews with Dr. Brad James, PhD in Metallurgical Engineering and Failure Analysis expert at Exponent, Exponent was tasked to confirm whether the Caribou-Palermo line had significantly more repair tags when compared to other lines and to discover the reasons behind the high volume of high priority repair tags.

Exponent published its final report, entitled "PG&E Caribou-Palermo Asset Condition Investigation" to PG&E and the CPUC on November 1, 2019. A copy of the report was obtained via Grand Jury Subpoena.

According to the Exponent report the comparison lines were chosen from a list of transmission lines based on four criteria:

- 115 or 230kV lines only
- Elevations greater than 1,000 feet
- Single circuit steel lattice towers
- Tier 2 or Tier 3 fire zones

⁹² The nine lines were identified as the Caribou-Palermo line, the Drum-Rio Oso #1 line, the Pitt #1-Cottonwood line, the Caribou #2 line, the Caribou-Plumas Jct line, the Colgate-Alleghany line, the Fulton-Hopland line, the Hat Creek #1-Westwood line and the Keswick-Trinity line.

⁹³ CPUC Data Request: SED-007, Response to Question 6.

Other criteria that were also applied included mountainous terrain and wind exposure. Based upon the criteria only transmission lines in running through low population, rural areas were chosen. There were no transmission lines from the Bay Area, Central Valley or central coast chosen for comparison.

Among the conclusions reached by Exponent are the following:

- The Caribou-Palermo line was confirmed to have greater post-Camp Fire high-priority (“A” + “B”) repair tag⁹⁴ counts than all selected comparison lines, as well as an increased per-structure high-priority tag rate when normalized⁹⁵ for the number of steel lattice towers.
- Other lines adjacent to Caribou-Palermo line such as Bucks Creek–Rock Creek–Cresta (BCRC), Cresta–Rio Oso (CRO), and Paradise–Table Mountain (PTM) had the second, fourth, and fifth highest post-Camp Fire high-priority tag counts, respectively, when normalized for steel lattice towers. Pit #4 Tap (P4T) had the third highest normalized high-priority tag count. It is not near Caribou-Palermo line.
- Wear was the most commonly observed post-Camp Fire damage mechanism for Caribou-Palermo line “A” tags and second most commonly observed damage mechanism for “B” tags. Nearly all Caribou-Palermo line wear-related tags were associated with cold-end hardware. Cold-end hardware wear issues were likely caused by repeated conductor and insulator movement over time.
- Caribou-Palermo line, BCRC, and CRO lines, each located within the North Fork Feather River Canyon, exhibited high-priority cold-end hardware wear tag counts more than three times higher than the next highest comparison line when normalized for steel lattice towers.
- Caribou-Palermo North experiences higher annual average wind speeds than non-adjacent comparison lines. Lines analyzed within the North Fork Feather River Canyon may have increased wear tag rates associated with longer-duration high-wind conditions. No apparent correlation between wear tags and temperature, precipitation, or peak wind speed (50-year return) was observed.
- From 2001 to November 2018, the Caribou-Palermo line was subjected to similar ground inspection and patrol frequencies as comparison lines. These inspections and patrols yielded comparable normalized high-priority tag counts between Caribou-Palermo line and comparison lines.

⁹⁴ A report that documents a problem found, assigns a priority code to that problem and requests repair/replacement. PG&E Corrective Work Forms (CWF) are commonly referred to as tags. CWFs/tags are also referred to as notifications, especially in Transmission Asset Management.

⁹⁵ Normalization is a statistical analysis used for comparison purposes. Exponent divided the number of tags on a transmission line by the number of towers in the transmission line in order to compare transmission lines with disparate numbers of towers.

- The Caribou-Palermo line had more normalized equipment-based outages between 2007 and 2018 than approximately 80 percent of the other WSIP transmission lines.
- Caribou-Palermo line and other North Fork Feather River Canyon lines appear to have a unique set of factors that contributed to increased rates of high-priority cold-end hardware tags relative to other comparison lines. Factors such as design (link connectors and a relatively large number of non-tensioned insulated conductors), long-duration exposure to higher winds, age, and historical inspection methodologies likely all contributed to these cold-end hardware wear issues.

Although Exponent did not complete a forensic root cause analysis of the C hook that failed on Tower 27/222, when questioned Dr. James stated “That said, things like wear, things like fatigue do have a time component because the more times you rub that metal against each other, the more chance you have to – create wear. The more times you cyclically load the spring in your garage door, the longer you do that, the more chance you are going to initiate a fatigue crack and eventually grow it.”

The Exponent report analyzed historical (2001-2018) high priority tags⁹⁶. Consistent with the statements of the troublemen and linemen who have completed all inspections and patrols on the Caribou-Palermo line, Exponent found no high priority tags for cold end attachment hardware wear. Exponent also examined historical (2001-2018) inspection and patrol records for all of the comparison transmission lines. Exponent did not find any high priority tags for cold end attachment hardware on any of the comparison lines. This evidence established that the local Table Mountain District troublemen and linemen were not doing less than the troublemen and linemen assigned to other districts involved in the study.

Although the primary focus was cold end attachment hardware wear, the Exponent report also analyzed all Priority A and B “tags” generated by the WSIP. Priority A and B tags were “binned”⁹⁷ by component type and damage mode.

Organized by component type, on the Caribou-Palermo line there were actually more tags (all Priority B) generated for “Foundation” issues than “Cold End Hardware.” There were also tags generated for steel frame issues, insulator issues and conductor issues.

Organized by damage mode, there were more tags generated on the Caribou-Palermo line for soil movement (associated with foundation) than wear (exclusively associated with cold end attachment hardware). The other damage mode tags included bent, loose, missing, broken and corrosion.

The fact the troublemen and linemen missed that tower foundations were buried and portions of the steel structures were bent, loose, broken or missing contradicted the assertions of PG&E

⁹⁶ Issues that would be considered A or B priority under the current version of the ETPM

⁹⁷ In layman’s terms the tags were separated, sorted and organized by category.

employees that inspections and patrols were being conducted pursuant to the requirements of the ETPM.

Tower 27/221 best illustrates this lack of attention and thoroughness. On September 11, 2018, during the Annual Air Patrol of the Caribou-Palermo line, the troubleman noticed that a “hold down insulator anchor” on Tower 27/221 had failed. The troubleman noted the problem on his report and created a Corrective Work Form for repair of the hold down insulator anchor. On November 11, 2018, during the Camp Fire origin and cause investigation, the electrical engineer retained by Cal Fire noted and photographed the failed hold down insulator anchor on Tower 27/221. The electrical engineer also noted the arm of the transmission tower to which the hold down insulator anchor should have been attached was bent and two of the steel members of the arm were buckled. No corrective work form for the arm was located. The troubleman **only** created a corrective work form for the hold down insulator anchor. According to PG&E policy, as explained by multiple transmission troublemen, supervisors and specialists, corrective work forms are problem specific and if there are multiple problems in a tower each problem gets a separate corrective work form.

The Exponent report also compared the number of post-Camp Fire A and B tags with the comparison lines. Except for tags related to foundation issues, Exponent did not separate and organize the tags from the comparison lines. According to the Exponent report there were previously undocumented issues on all of the comparison lines. The only reasonable conclusion to be drawn from this data is that inspections and patrols on other lines are only marginally more thorough than those done on the Caribou-Palermo line. This conclusion was corroborated by Exponent’s comparison of A and B tags across maintenance districts. According to the Exponent report the post Camp Fire normalized A and B tags for comparison lines in the Table Mountain maintenance district (referred to as Table Mountain Headquarters by PG&E personnel) were not inconsistent with those of comparison lines in the Sacramento and Lakeville maintenance districts.

Based upon the totality of the evidence regarding the ETPM and inspections and patrols the only reasonable conclusion to be drawn was the Caribou-Palermo line specifically and the Table Mountain District in general are not outliers. The evidence established the lack of thorough inspections and patrols on the Caribou-Palermo line was a systemic problem not a local problem. Based upon the evidence the only reasonable conclusion was that in low population density mountainous areas, the PG&E Electrical Transmission Division was not following the standards and procedures established by the ETPM. As a result in those areas PG&E was not complying with the standards and procedures submitted to the regulatory agencies and required by regulation.

XI. BUDGETARY CONSIDERATIONS

Financial records from 2007 through 2018 obtained from PG&E, the CPUC and FERC clearly established PG&E had consistently increased its budget for maintenance, repair and replacement of transmission assets⁹⁸. The central issue in the FERC litigation over PG&E's 2018 Transmission Owner's Rate Case request was how that money was being spent. In the "Summary of the Prepared Rebuttal Testimony of {Vice President of Electrical Asset Management}"⁹⁹ then PG&E Vice President of Electrical Asset Management states: "PG&E makes these investments to address deteriorating electric system infrastructure and to address equipment that has reached the end of its useful life and system designs that no longer meet operational requirements." The PG&E Senior Director, Transmission Asset Management at the time, also provided testimony in the FERC litigation. In the "Rebuttal Testimony of {Senior Director, Transmission Asset Management}"¹⁰⁰ it was stated:

"PG&E must repair or replace assets that are approaching the end of their service lives, that are deteriorating, or that have failed. Replacement and repair of PG&E's assets are essential to maintaining and improving PG&E's transmission service to its customers. PG&E expects that replacement-related capital work will continue to grow as PG&E's assets continue to age. A significant part of PG&E's transmission infrastructure was constructed in the years following World War II, with some assets being even older. In addition, PG&E has one of the largest investor-owned fleet of hydroelectric facilities in the Country. By and large, these facilities are located remotely from PG&E's load centers. Many of these facilities—and their related transmission assets—were constructed in the early 1900s. Due to an increasingly large number of these assets nearing the end of their useful service lives, capital investment will shift significantly, from capacity increase-related projects, to lifecycle replacement projects."

However, the evidence gathered during the Camp Fire Investigation contradicted the FERC testimony of both Vice President of Electrical Asset Management and Senior Director, Transmission Asset Management. PG&E was **not** using the money to replace the oldest and most deteriorated transmission assets.

Because of limited available resources, the investigation was unable to fully analyze PG&E's financial records and assumed all figures were correct. The investigation instead focused on how, where and why the money was being spent. The evidence established the maintenance/repair/replace budget was primarily based upon "reliability metrics"¹⁰¹.

⁹⁸ During litigation relating to PG&E's 2018 Transmission Owner Tariff (TO18) rate case, PG&E represented that from 2007 (\$405,739,000) through 2016 (\$1,124,457,000) electrical capital expenditures increased every year except 2013 (decreased app. \$20,000,000 from 2012) and 2016 (decreased app. \$7,000,000 from 2015). In total, spending increased \$734,812,000 between 2007 and 2015 (the high spending mark), or an average of \$81,645,777 per year.

⁹⁹ Exhibit PGE-0037, FERC Docket No. ER16-2320-002.

¹⁰⁰ Exhibit PGE-0038

¹⁰¹ Reliability metrics measure how often a power line is out of operation, how long it is out of operation and how many customers are affected by that outage. SAIDI, SAIFI, CAIDI, ACOF and ACOD were the performance metrics used.

The evidence established PG&E electrical transmission expenditures were divided into two budget categories: 1) capital and 2) expense. The capital budget for the electric transmission division of PG&E was funded through customer rates which were determined by FERC “rate cases.”¹⁰² The expense budget was funded by the company. Any money spent on the expense budget potentially reduced the amount of profit of the company. In general, inspection, patrol and maintenance of electrical transmission assets were paid from the expense budget. Replacement of electrical transmission assets was paid from the capital budget. FERC rate cases, and PG&E’s future capital budgets, were based upon PG&E’s projections of capital projects. The evidence established that, for budget purposes, all components of the electrical transmission system were considered “assets.”

A. Expense Budget

Based upon PG&E internal records and interviews of electrical transmission employees, including a former employee of the PG&E Business Finance Department, it was established the budget for inspection and patrol of the transmission lines was controlled by the Business Finance Department. Each year the Business Finance Department set an inspection and patrol budget for each of the PG&E transmission maintenance divisions. That budget was based upon the allotted time for all of the inspections and patrols scheduled for that year. The allotted time for each inspection and patrol was based upon the specific time allotted for a troubleman to spend on a single structure (e.g. tower or pole). To compute the time allotment for a transmission line, the single-structure time-allotment was multiplied by the number of structures in the transmission line.

The time allotted to be spent on a single structure was a system-wide constant and did not take into account the physical location of any specific structure or the amount of time necessary to travel from structure to structure. For example, the time allotment assumed the inspection of a tower on the Caribou-Palermo line, parts of which could be accessed only by hiking a steep trail, would take the same amount of time as inspecting a tower in the Central Valley, located directly adjacent to a public roadway.

When questioned about the time allotments for inspections and patrols, a former employee of the Business Finance Department who was intimately involved in the allotment process, admitted he had no knowledge or experience with inspections and patrols, and based the allotments solely on dividing up the overall electric transmission expense budget. This former employee also asserted the Transmission Line Supervisors and Superintendents were consulted regarding the proposed allotments. The Transmission Line Supervisors and Superintendents interviewed denied having any input or control over the time allotted for inspections and patrols.

Although denied by the involved employees, emails between the Table Mountain Headquarters secretary and several troublemen indicated the troublemen were not able to complete some

¹⁰² A rate case is the utility’s explanation and justification for a rate increase. In layman’s terms, the utility lists all of the capital projects the utility deems necessary and their projected costs. If the total cost of all of the projects is higher than the projected amount to be collected from customers, the utility requests a rate increase and files a rate case. The rate increase is based upon the difference between projected costs and projected collections from customers. The rates which PG&E is allowed to charge customers includes a profit margin defined by FERC.

inspections in the time allotted. For example, the 2014 Detailed Ground Inspection of the Caribou-Palermo line was allotted 89.5 hours. PG&E records showed, before the secretary re-assigned hours billed by the troubleman to other projects, that the troubleman and five linemen actually spent 121 hours completing the inspection. When asked, a former Transmission Line supervisor asserted that because of the artificially constrained budget, his district was constantly under pressure to limit the hours necessary to complete thorough inspections and patrols of transmission lines.

During this same time period internal PG&E emails indicate the expense budget for electrical transmission was being reduced. An October 2015 email noted: "For the overhead tower inspections, I don't think we would be able to do any repairs and incur land costs shown in item three and four in 2015." The email includes a chart of projects with the 2015 and proposed 2016 budgets. Item three in the chart is "Severe deterioration repair (tower department)."

In an August 2016 email regarding a transmission expense budget meeting from a manager in Business Finance to a Senior Director of Transmission Lines, it was stated: "The purpose of the meeting is to obtain Leadership guidance on *which* items to pursue and *when*. This input is important given the Expense reduction pressures being pushed down on Transmission Operations for 2017." One of the people involved invited to this meeting was the former Business Finance employee assigned to track unit costs for the transmission inspection and patrol budgets. When questioned by investigators, the former Business Finance employee conceded one way to reduce budget for inspections and patrols is to reduce the unit cost. According to the employee, the unit cost is reduced by reducing the time allotted for inspection/patrol of each transmission asset.

During this same time period, internal PG&E documents establish the "T Lines Patrols and Inspection Continuous Improvement Charter" was formed. The T Lines Patrols and Inspection Continuous Improvement Charter was a committee made up of PG&E personnel from the transmission line division, asset management, asset strategy and business finance. One of the specific mandates of the committee was evaluation of the feasibility of reducing costs by changing the frequency of inspections and patrols or finding more efficient work practices.

Based upon the totality of the evidence, specifically the reductions in times allotted for patrol and inspection, the internal emails indicating budget reductions and the formation of a committee to investigate reducing patrol and inspection costs, the only reasonable conclusion was that PG&E achieved expense budget cost savings by reducing the thoroughness of inspections and patrols.

PG&E also reduced its expense budget by charging expense projects to the capital budget. Moving projects from the expense budget benefits PG&E in two ways. First, every expense budget dollar saved was an additional dollar of potential profit. Second, the customers (ratepayers) pay over 100% of each dollar spent on capital improvements that brings in additional profit. Based upon internal emails and interviews with engineers involved in the planning and management of transmission projects, it was common for PG&E to look for ways to bootstrap expense budget projects on to capital budgets projects. Hypothetically, for example, instead of paying \$1000 from the expense budget to fix a component, PG&E would pay \$10,000

from the capital budget to replace the component. The \$1,000 saved from the expense budget becomes profit and the company charges the customers \$10,500¹⁰³ for capital improvement of the component.

The evidence established that PG&E personnel were consistently looking for ways charge expense budget projects to the capital budget. In a 2018 email from a PG&E civil engineer to a supervisor in the Transmission Line Asset Strategy Department of Transmission Asset Management, the civil engineer wrote:

“I understand Asset Strategy has been working on a new way to define unit of capital to make it easier to capitalize a partial replacement on tower sections (e.g. footing, crossarm, etc...). We are replacing the top part of a distorted tower under emergency and was wondering if that could be considered a unit of capital and capitalize the project for corporate accounting purposes.”

Based upon interviews with various PG&E personnel it was established that PG&E, as is common with large companies, had developed company accounting rules. Application of these rules determines if a project is charged to the expense budget or the capital budget. In general the rules hold that maintenance and repair are paid from the expense budget and replacement is paid from the capital budget. The above email indicates a move within PG&E to blur the lines between repair and replace to allow some repairs to be charged to the capital budget.

Another example occurred after the cancellation of the 2007 project to relocate ten deteriorating towers on the Caribou-Palermo line. The original Advance Authorization (AA) requested \$800,000. Only \$200,000 was approved. Once the project moved forward, the \$200,000 budget was quickly surpassed. By the time the project was cancelled in 2009 almost \$800,000 had been spent. A portion of that money was spent constructing an access road along the proposed new route of the ten new towers. According to internal emails obtained, the money spent to construct the new access road was charged as a capital improvement on another, adjacent transmission line. According to the former PG&E Director of Electric Asset Strategy who approved the 2007 AA, the rest of the money spent on the canceled project should have been charged to the expense budget. Internal emails establish that PG&E made an effort to find ways to charge the remainder of the money spent on the canceled project to the capital budget. A 2013 email from the former Maintenance and Construction Engineer (M&C) Engineer in charge of the project stated:

“Looks like we will be forced into trying to Capture the \$650K+/- that has been spent on the now canceled project for relocating Towers 6/53 to 7/65 from the non-accessible River side to Hwy side that (Project Manager) was managing.

In order to not have to Expense the dollars spent we will be required to perform the following work.”

¹⁰³ The extra \$500 added to the \$10,000 is the FERC allowed profit margin that PG&E would charge on capital improvements.

The email goes on to list the proposed work which mainly consisted of replacing insulators on the towers that Maintenance and Construction Engineer had previously described in the Advance Authorization as deteriorated. The work did not include replacement of the deteriorated conductor (annealed and parting) or any of the deteriorated hardware.

In a subsequent, 2014 email regarding the canceled project, the former M&C Engineer stated:

“In order to try and capture the \$900K that was spent for nothing, Asset Management decided that we would just replace the Insulators and Hardware on the section of towers that were initially going to be relocated.”

In a 2016 email regarding the canceled project the former M&C Engineer stated:

“This work was deemed by *{the Sr. Director of Transmission Asset Management}* in order not to end up expensing \$800,000 that was spent by *{Project Manager}* on an original job started by *{former Table Mountain TLine Supervisor}* to relocate this section of towers.”

When asked about these emails, the former M&C Engineer denied he was instructed to find ways to capitalize the money already spent and asserted that he was lying in the emails in order to get necessary work done quickly. As to the 2013 and 2014 emails, he stated the recipient of the emails, the Transmission Line Supervisor at Table Mountain Headquarters, distrusted engineers, so he lied and put blame on Asset Management in order to avoid argument. When asked about the 2016 email, which was directed to an engineer in Asset Management, the former M&C Engineer replied that the Sr. Director of Transmission Asset Management was not involved in the project and he invoked the name of the Sr. Director of Transmission Asset Management to speed up the process. This person is the same former M&C Engineer who wrote the original AA and the approved AA and now claims that his description of the condition of the relevant Caribou-Palermo line structures and conductor was unsupported and exaggerated for the purpose of securing funding for the project. In a 2016 email to the Transmission Line Asset Strategist, who canceled the 2007 project, the former M&C Engineer stated:

“The only thing that after reading the below that came to my mind would be to also add life expectancies on some of our older lines that we purchased from other utilities. Caribou-Palermo (old Caribou-Golden Gate) for example...Built roughly in 1907. This line is in a very remote area. Access is extremely limited. Conductor was deemed annealed several years back. Line has tons of splices in it. Some spans have 5 splices within said span. Most of the upper line section is subject to rockslides that have taken this line out in the past. Restoration time is lengthy..

Just one example, but I feel we should identify lines or line sections that meet this type of criteria and add them to our mitigation plan or part of future complete structure replacements...”

B. Capital Budget and Comparative Risk Analysis (RIBA)

For the capital budget, the evidence established PG&E employed “comparative risk analysis” to determine the budgetary priority of potential capital projects. Based upon interviews with several current and former PG&E employees who were involved in risk analysis, it was established PG&E has traditionally used some form of comparative risk analysis. Comparative Risk Analysis balances the probability of risk against the probability of consequence; and depends upon accurate projections and analysis of both. One of the former employees interviewed was the former Senior Vice President of PG&E. According to the former Senior Vice President of PG&E when he arrived at PG&E in 2007 the company was using comparative risk analysis, which he disapproved because of its subjective nature¹⁰⁴. The former Senior Vice President of PG&E tried to install an objective risk model focused solely on the probability of failure. The former Senior Vice President of PG&E left PG&E in 2011.

The evidence established in 2014 PG&E again began using comparative risk analysis for capital funding. Since 2014 PG&E has used the Risk Informed Budget Allocation (RIBA). Based upon internal documents and interviews, the evidence established that under RIBA, capital projects were evaluated for funding based upon safety, environmental and reliability impacts that were scored based upon a complex matrix. According to a Manager in Transmission Asset Management, and one of the persons actively involved in the RIBA scoring process in 2014, reliability is “more about the customer impacts. So number of customers, the duration of outages, large cities, metropolitan areas. It’s what we call critical locations. This can be anywhere from towns to cities.”

For each category (safety, reliability, environment), a project would score between 1 and 10,000. The scores for the three categories were combined with the result being a project score between 3 and 30,000. The final score, according to the Manager in Transmission Asset Management, represents the “consequence if we don’t complete the project.” Once all of the proposed projects are scored the projects are ranked high to low by total score. RIBA scoring determined whether a project that is not mandated by a regulator was funded for the coming year, RIBA scoring and ranking was independent from and occurred after a project had been included in a FERC rate case.

Based upon the evidence, projects were used in FERC rate cases to justify rate increases and then, later, not funded because of a low RIBA score.

As examples, in 2014 three proposed projects on the Caribou-Big Bend section of the Caribou-Palermo line were scored under RIBA; the TL¹⁰⁵ Relocate 10 Towers project, the Replace 5 Damaged Towers project, and the 115kV NERC Alert. Through internal documents and witnesses it was determined that the TL Relocate 10 Towers project was the 2007 project to replace and relocate the ten deteriorating towers that had been canceled in 2009. By 2014 the only portion of the project active was the replacement of insulators so that the money spent on the project prior to cancellation could be charged to the Capital Budget. Based upon internal

¹⁰⁴ Relative risk analysis is a form of comparative risk analysis.

¹⁰⁵ TL is abbreviation for Transmission Line.

documents and witnesses, it was established that the Replace 5 Damaged Towers project referred to the replacement of the five towers that collapsed in December of 2012. Based upon internal documents and witnesses it was established that the 115kV NERC Alert project referred to the 2013 Caribou-Big Bend NERC project.

According to the “Risk scoring for baselined projects” the Replace 5 Damaged Towers total risk score was 180. The total risk score for the Replace 5 Damaged Towers project was explained in a February 2014 email from a RIBA team member¹⁰⁶ to the Senior Director of Transmission Asset Management in 2014. According to the RIBA team member:

“<200 score because there is no likely large environmental event (if structures fail, it will be likely due to heavy rain and no wildfires are possible then). Also no likely public safety issue with live wires down because it is in a remote area. Reliability score is not that high because although the likelihood of failed structures happening is high, the affected customers are likely in the order of >1K.”

According to the RIBA scoring sheet for the Replace 5 Damaged Towers project the person(s) scoring the project felt that the failure of the Shoe Fly “Probably could happen this next season.” On the “Frequency/time-to-impact taxonomy” the project scored 6 out of 7 possible points.

In 2014 the Manager in Transmission Asset Management took part in the RIBA scoring. In addition she was the “Program Manager” for the Replace 5 Damaged Towers project. Based upon the 2014 RIBA scoring records the Manager in Transmission Asset Management stated that the Replace 5 Damaged Towers project scored the lowest possible scores of 1 for safety and environmental and scored 178 for reliability. According to the Manager in Transmission Asset Management the safety score was justified because the “worst reasonable direct impact,” (WRDI) “basically in the particular case, would a structure fall down and hit somebody” was negligible because of the “remote” location of the Shoe Fly poles. According to the Manager in Transmission Asset Management, despite the written statements from 2014 documenting concern for the long term reliability of the Shoe Fly, the Shoe Fly was “temporary permanent” and it was not felt to be a danger to collapse. A former Transmission Specialist for PG&E and the person who was in charge of the construction of the Shoe Fly, was also asked about the Shoe Fly. According to the former Transmission Specialist, the Shoe Fly was only designed to be in place for a few months with the expectation that permanent replacement towers would be erected the following summer of 2013. Notes in the RIBA scoring sheet under the category reliability category of “Frequency¹⁰⁷” corroborate the former Transmission Specialist. The former Transmission Specialist was also corroborated by an October 2013 email from the former M&C Engineer to multiple people. In the email the former M&C Engineer states “I do not believe there was a PO¹⁰⁸ created under MWC 70¹⁰⁹ yet for that replacement project that is now sitting

¹⁰⁶ The position/job title of the RIBA team member was never determined.

¹⁰⁷ The “Frequency” category measures how often a problem is expected to occur.

¹⁰⁸ In layman’s terms, a project proposal.

¹⁰⁹ MWC is an abbreviation of Major Work Category. Each major work category is identified by a number. In this case the proposed project falls with major work category number 70. All PG&E electric transmission work projects are assigned to a major work category for accounting purposes.

on Wood poles and was not intended for long term reliability.” The project was assigned a frequency score of 6 out of 7 possible with the note “Probably could happen this next season.”

No records were ever located to support The RIBA team member’s conclusion that the Shoe Fly poles would most likely fail due to heavy rain. According to the Manager in Transmission Asset Management, The RIBA team member was an expert on the RIBA process who was assigned to assist “the engineer walk through the process.” Based upon the records the Manager in Transmission Asset Management identified the engineer as the engineer most familiar with the overall project and assigned to do the RIBA scoring for the project. According to an undated PG&E Org Chart, the engineer assigned to score the project was a Senior Engineer assigned to Transmission Asset Development and reported directly to the Manager in Transmission Asset Management. According to the notes on the scoring sheet, as interpreted by the Manager of Transmission Asset Development, “the concern here is the note says that the structures would go down during rainy and wet storm. And what’s not shown here is that the wildfire is not likely, because on the wet ground not likely to have wildfire.” No records in support of Senior Engineer’s conclusion were ever located.

On the other hand, the TL Relocate 10 Towers project scored 581. According to the scoring sheet, the Senior Engineer was also the engineer assigned to score this project. Despite the fact that by 2014 the scope of the project was limited to the replacement of insulators so that money spent on the project prior to cancellation could be charged to the Capital Budget, the project scored 18 points out of 10,000 possible points for safety¹¹⁰. Despite the fact that the project involves the same Caribou-Palermo line the Reliability Risk Score is 562. 434 of those points are justified because “WRDI is possible contact with public leading or to other facilities causing potential injuries to few employees” according to the notes on the scoring sheet.

The 2014 RIBA scoring is used to highlight the subjective nature of the comparative risk analysis. Because they are subjective the risk scores are easily manipulated. PG&E was highly motivated to complete the TL Relocate 10 Towers project in order to be able to charge the budget overruns, money already spent, to the capital budget. By 2014 the Replace 5 Damaged Towers project was about future spending. The best example of the manipulation is the WRDI justifications. One of the oft-stated justifications for the TL Relocate 10 Towers Project was the fact that the ten towers were located in a remote, inaccessible location. The towers were so inaccessible that PG&E had to use helicopters to fly personnel to the towers. Also, there was no evidence that any of the ten towers was on the verge of collapse according to the 2009 email from the manager who cancelled the project in 2009. On the other hand, the Shoe Fly was built on Camp Creek Road and any, or all of those poles, could reasonably be expected to fall down within a year.

Another example of manipulation of facts in the 2014 RIBA was the RIBA team member’s conclusion, apparently based upon the Senior Engineer’s scoring note that “structures would go down only if it is rainy and wet”; and restated several times by the Manager in Transmission Asset Management that the wood Shoe Fly poles would probably only collapse during heavy rain

¹¹⁰ 18 times the safety score for the Replace 5 Damaged Towers project

thereby minimizing the chance of a wildfire. This statement was made in 2014, in the middle of a historic drought.

PG&E's own records clearly establish wind has long been classified as one of the top causes of structure failure on both transmission and distribution lines. PG&E's own records also establish the Feather River Canyon is known for high and sometimes extreme winds. Based upon PG&E wind records, the Exponent Report stated "Maximum (or peak) wind speeds in the areas of the chosen lines are generally found to vary between 60 to 100 mph, as measured and reported in "Extreme Wind Speed Estimates Along PG&E Transmission Line Corridors" across one-minute time intervals and at an elevation of 33 feet above ground level, over a 50-year return period." According to data pulled from the Jarbo Gap RAWS¹¹¹ by Meteorologist Kris Kuyper the highest number of high wind events occur in the month of October.

The inherent weakness of comparative risk analysis is its subjective nature. Data can be manipulated to achieve a desired result. Based upon the evidence the 2014 RIBA process exposes the manipulation of comparative risk analysis by PG&E personnel.

C. Transmission Asset Management

The examination of the 2014 RIBA scoring also highlighted the central role of Transmission Asset Management (TAM) in the development and execution of the capital budget. The former Senior Director was replaced as Senior Director of Transmission Asset Management in 2017. The Senior Director of Transmission Asset Management who assumed the position in 2017 explained the role of Transmission Asset Management:

"My team's responsibility for managing those assets would be to track performance of the operation of the assets and ultimately make recommendations for enhanced -- future enhancements for those assets, investments that would occur over the next five to ten years both to replace aging infrastructure, enhance existing infrastructure for greater operational flexibility as well as increased capacity to meet NERC reliability plan and standards."

"My job is to identify future work, future planned capital work. Our process has a bias towards identifying work approximately six years out."

In 2017, shortly after the new Senior Director of Transmission Asset Manager took over, TAM published the Electric Transmission Overhead Steel Structure Strategy Overview (2017 Strategy Overview). The document was written by a Senior Engineer assigned to Transmission Asset Strategy (TAS) within TAM. According to the Senior Engineer, the function of TAS is to review conditions reported from the field, study performance of the assets, apply criteria and develop a strategy for replacement or repair. According to the Senior Engineer the "conditions reported from the field" are the notifications/tags generated by the troublemen, linemen and towermen¹¹². The "criteria" listed by the Senior Engineer include the age of the asset, environmental risk, safety risk, reliability risk.

¹¹¹ Remote Automated Weather Station. See section XVI "Drought and Wind"

¹¹² Towermen work only on the steel structure of the tower.

According to the Senior Engineer, prior to the 2017 Strategy Overview neither a comprehensive plan for tower risk nor a tower risk database existed at PG&E. The Senior Engineer's statement was corroborated by internal emails obtained from PG&E. A June 10, 2016 email from a Manager in Transmission Line and Substation Asset Strategy¹¹³, to a group of PG&E employees including the Senior Engineer, appears to be the genesis of the 2017 Strategy Overview. This email regarded a "Comprehensive Plan for Towers." According to the text the email was follow-up to a meeting held earlier in the day. The stated goal of the meeting was "Develop a Comprehension Plan for Tower Risk with emphasis on steel corrosion risks. Plans should include maintenance plans, detail inspection specifications, repair vs. replace criteria, capital and expense cost estimates, risk database, update Standards." Based upon the evidence, the only reasonable conclusion to be drawn is that, despite the fact that PG&E decisions were allegedly based upon risk analysis, until 2017 PG&E had no consistent and comprehensive risk database or policy for evaluating risk.

According to the 2017 Strategy Overview "The Transmission Line Steel Structure strategy will manage the asset life cycle (e.g. Create, Utilize, Maintain, Renew (replace), and Dispose) based on risk. The renew asset life cycle is based on proactive cost replacements for high-risk assets. For medium risk assets, it is based on reactive replacements following asset failures." The "high risk," "medium risk" theme continues throughout the 2017 Strategy Overview. Although not mentioned in the quoted sentence, there is also a "low risk" category. The appendix to the 2017 Strategy Overview includes an "Asset One Page Summary T-Line Strategy From A PAS 55 Framework." The summary consisted of five different charts. Although she is the author of the 2017 Strategy Overview, the Senior Engineer asserted that she was not familiar with the charts and was unable to explain the charts or their significance. According to the Senior Engineer the One Page Summary was prepared by her supervisor and attached to her work. The final chart, which has no title, appeared to summarize PG&E TAM risk strategy. According to the chart, for low risk assets the strategy was "run to failure" with "minimal patrol to continuously assess risk," "no maintenance," and "only replacement no repairs." For high risk assets the strategy was "condition base and cause evaluation," "extensive patrol with more frequency," "minimum req¹¹⁴ maintenance" and "replace/repair."

During interviews and testimony, TAM personnel stated that the high, medium and low risk categories applied to components of the transmission lines and not the entire lines. Insulators were identified as an example of a low risk component. All current TAM personnel disavowed the term "run to failure" during interviews and testimony.

Shortly after publication of the 2017 Strategy Overview PG&E published the 2018 TD-8101 – Transmission Line Overhead Asset Management Plan (2018 AMP). According to the Senior Engineer the 2018 AMP was written by multiple engineers, including herself. The "Document Owner" listed on the 2018 AMP is the Senior Director of Transmission Asset Management.

¹¹³ At the time The Senior Engineer's direct supervisor

¹¹⁴ abbreviation of required.

The 2018 AMP included a modified version of the TAM Risk Strategy chart found in the Appendix of the 2017 Strategy Overview. According to the preface to the chart:

“The characteristics and condition of each transmission line overhead asset inform the risk and approach to replacement and operation, as well as patrol and maintenance frequency, as shown in” the charts

For low risk assets the strategy is “run to maintenance,” with “low degree of patrol with minimal frequency to continuously assess risk,” and “corrective maintenance.” For high-risk assets, the strategy is “preventative maintenance and cause evaluation,” with “high degree of patrol with more frequency,” and “preventative maintenance.” The 2018 AMP also includes a table entitled “Risk and Replacement Strategy per Asset.” The Risk and Replacement Strategy per Asset table identifies individual components of the, identifies the risk for each component and defines the replacement strategy for each component. Overhead conductor is listed as a “high to medium” risk with the replacement strategy “preventative maintenance for high risk” “run to maintenance for medium risk.” Steel structures are listed as high risk with the replacement strategy “preventative maintenance.”

The most relevant difference between the chart in the 2017 Strategy Overview and the chart in the 2018 AMP is the replacement of “Run to Failure” with “Run to Maintenance.” When asked about “Run to Failure” TAM employees tended to distance themselves from the phrase and criticize the phrase as being undefined although the term “Run to Failure” appears to be an industry standard and was discussed as an appropriate strategy for some components of the electrical transmission system in the 2010 Quanta studies. When asked to define “Run to Maintenance” most TAM employees identified failure as the trigger to maintenance. Based upon the evidence it appears that the change from failure to maintenance was semantical only.

As Senior Director of Transmission Asset Management the witness was responsible for overseeing the organization within PG&E responsible for managing assets of transmission and substation infrastructure and overseeing risk management within electrical transmission. As the manager of transmission assets, he played a sponsor role for new capital projects to replace to replace infrastructure. Transmission infrastructure was defined as transmission structures, conductor, insulators, circuit breakers, substation busses and transformers.

According to the Senior Director of Transmission Asset Management, information from the field, in the form of notifications/tags generated as a result of inspections and patrols, play a role in identifying potential projects to be included in the five year plan. According to the 2018 AMP “Transmission line overhead asset performance is primarily tracked through two factors: historical line outages and maintenance and inspection found notifications.” The Senior Director of Transmission Asset Management conceded the quality of the input received from the field has an impact on the overall asset strategy. The Senior Director of Transmission Asset Management also conceded problems not identified by field representatives would never be brought to the attention of TAM. As a result projects to repair or replace those problems would never be

planned. The Senior Director of Transmission Asset Management also conceded that as of 2018, other than the NERC Project there were no projects planned through 2022 on the Caribou-Big Bend section of the Caribou-Palermo line.

Although PG&E policy, as defined in documents like the 2017 Strategy Overview and the 2018 AMP and explained by TAM personnel, represented that decisions were made based upon a combination of performance information and patrol and inspection findings, the evidence indicated that performance information played an oversized role and patrol and inspection findings were insignificant. As a result of years of reductions of frequency and thoroughness of patrols and inspections, problems were not being identified. Based upon the WSIP and the Exponent report it was clear that on the Caribou-Palermo line and comparable lines, PG&E troublemen were not identifying problems.

The evidence established decisions regarding repair or replacement of transmission assets could not have been based upon non-existent patrol and inspection notifications. As such, then the decisions were being made solely on asset performance information. Performance information consisted of a complex series of reliability metrics (SAIDI, SAIFI, CAIDI, ACOD, ACOF). The evidence established these reliability metrics were a statistical analysis of outage data. This information was required to be tracked and reported yearly to CPUC, CA ISO, WECC, NERC and FERC. In general, all of the reliability metrics measured either the number or the effect, or both, of power outages per year. Effect is measured by either the number of customers who lose power as a result of the outage or the duration of the outage or both. The evidence established that the Caribou-Palermo line had only one dedicated customer (a powerhouse) who could be effected by an outage.

Information regarding transmission asset conditions was based upon information received from the field. This includes notifications/tags generated by troublemen, linemen and towermen during inspections and patrols, both routine and non-routine). According to the Senior Director of Transmission Asset Management, TAM relied upon notifications/tags to identify potential preventative maintenance projects. After substantial discussion the Senior Director of Transmission Asset Management conceded that the fact that if troublemen, linemen and towermen did not inspect specific components of the transmission assets, it would affect the reliability of the information upon which TAM was making decisions. Specifically he conceded that because nobody was looking for wear on cold end attachment hardware and therefor, no notifications/tags were being generated for replacement of cold end attachment hardware there were, as of November 8, 2018, no projects in the foreseeable future for the replacement of cold end attachment hardware.

Although there were no specific plans to replace cold end attachment hardware the Senior Director of Transmission Asset Management asserted that plans were being made to perform preventative maintenance on the Caribou-Palermo line. According to the Senior Director of Transmission Asset Management, the NERC Project included non-NERC required preventative maintenance on the Caribou-Palermo line. When confronted with the Project Scope document for the NERC Project the Senior Director of Transmission Asset Management was unable to identify any non-required work. According to the Senior Director of Transmission Asset

Management the non-required preventative maintenance was not included in the Project Scope document but that plans were being made to perform the preventative maintenance. However, no records or plans for any preventative maintenance projects on the Caribou-Palermo line were located through 2022.

Another concept, which came up repeatedly in interviews and testimony of TAM personnel was “bundling.” Based upon the evidence, for PG&E, bundling meant doing multiple projects on a transmission asset or line at the same time. According to the Senior Director of Transmission Asset Management TAM decisions were, in part, “informed by the most cost-effective approach for our customers.” Having crews do multiple projects at once is much more cost effective than having multiple crews make multiple visits to the asset or line. An example of bundling occurred in 2018 on the Parkway-Moraga 230kV transmission line. The line had been de-energized so that the tower department¹¹⁵ could fix a tower. While the line was de-energized the line department¹¹⁶ performed preventative maintenance by replacing insulators.

Bundling often involved the intertwining of capital budget and expense budget projects. Based upon internal PG&E emails and interviews with PG&E personnel, it appeared PG&E bundled expense budget projects with capital budget projects in order to charge the expense budget costs to the capital budget project.

Despite their preference for bundling projects there is no evidence of any intent to bundle any preventative maintenance projects to the 2013 NERC Alert Project.

The only reasonable conclusion to be drawn from the totality of the evidence is that PG&E was employing a run to failure strategy on the entirety of the Caribou-Big Bend section of the Caribou-Palermo line. Pursuant to the run to failure strategy, PG&E only applied a low degree or patrol with minimal frequency to continuously assess risk, and only performed corrective maintenance.

XII. SAFETY, RELIABILITY AND ENVIROMENT

The phrase “Safety, Reliability, Environment” appears consistently in PG&E documents, regulatory filings and public pronouncements. Members of the Electric Transmission Asset Management interviewed said safety, reliability and environment are the criteria by which all project decisions are judged. The Senior Director of Transmission Asset Management testified:

“In terms of how PG&E quantifies consequences, we usually categorize it in a number of areas focused on safety, impact reliability, impact to the environment are some examples.”

“An analysis starts with defining a risk event, and that's really defining what is that event that we believe could have exposure from a public safety reliability environmental standpoint, and then quantifying the potential drivers for that event, and the associated consequences for that event.”

¹¹⁵ The tower department deals solely with the steel transmission structures. Employees are called Towermen.

¹¹⁶ The line department deals with energized components (conductor, insulators, hot and cold attachment hardware) of the transmission system. Employee are called Linemen.

All members of TAM were asked which of the three criteria was considered the most important. They unanimously replied safety. The evidence, however, contradicted that assertion. The evidence showed disparate treatment of transmission assets based upon the reliability metrics.

The most basic example of disparate treatment based upon reliability metrics was the 500kV transmission lines. According to PG&E personnel the 500kV lines are the backbone of the electrical transmission system and an outage on a 500kV can potentially affect millions of customers. According to the ETPM, all 500kV structures were subjected to detailed ground inspections every three years. "Critical" 500 kV structures were subjected to climbing inspections every three years and as triggered. "Non-Critical" 500 kV structures were subjected to climbing inspections every twelve years and as triggered. All 500 kV structures were also subjected to yearly patrols. In contrast, 115 kV structures were subjected to detailed ground inspections every five years, air patrols in non-detailed ground inspection years and are never subjected to climbing inspections.

Another example of disparate treatment based upon reliability metrics established by evidence developed during this investigation was the Bay Waters power towers. Since 2005, the Bay Waters towers had their own classification in the ETPM. Although the ETPM refers to the Bay Waters Foundation Inspection, numerous PG&E documents and TAM personnel established the special treatment extended to the entire tower. Some documents limited the Bay Waters towers to only towers that were actually in the water but other documents and information from some TAM personnel indicated the Bay Waters towers included all towers in the Bay Area. The justification given by TAM personnel for the special treatment of the Bay Waters towers is the highly corrosive effect of salt on steel structures. When asked why special treatment was afforded to Bay Area steel towers but not steel towers along the Sonoma, Mendocino, Humboldt, Monterrey and San Luis Obispo coasts, TAM personnel were unable to explain the difference.

The final example of disparate treatment based upon reliability metrics established by the evidence arose out of a 2018 PG&E Lab Report on the hanger plates from the Parkway-Moraga 230 kV transmission line. According to the Lab Report, the hanger plates were submitted by the Supervisor, T-Line Construction, T-Line M&C Central-Bay Maintenance. When questioned, the supervisor stated wear was observed on the hanger plates while replacing insulators on the Parkway-Moraga line in the spring of 2018. There was no mention made of the C hooks and none were preserved. According to the supervisor a tower on the Parkway-Moraga was damaged in a mudslide and needed to be repaired. In order to repair the tower the line had to be de-energized. While the line was de-energized, a decision was made to proactively replace all of the "old" insulators and hardware. The Parkway-Moraga line was built after World War II in 1946. The insulators and hardware were assumed, because PG&E has no definitive records, to be 72 years old. In contrast, the Caribou-Palermo line was 91 years old when it was de-energized for over a month in December 2012 and January 2013 as a result of tower collapse. There is no record of PG&E doing any preventative or proactive maintenance on the Caribou-Palermo line while it was de-energized. According to PG&E, the reason no preventative or proactive maintenance was done was that the winter weather was not conducive to working in the Feather River Canyon.

A former PG&E Transmission Line Supervisor who, during his career in transmission lines, worked in almost all of the transmission line maintenance districts was asked if he had noticed a difference in the way transmission lines were inspected and maintained based upon a local population base. The former supervisor responded “We’re kind of out-of-sight, out of mind up there,” “We’re always fighting the political battle,” “But if something flips the screen down there [the Bay Area] they get a lot of attention.”

XIII. RISK MANAGEMENT

Prior to the Camp Fire, risk management for electric transmission was supervised by TAM. During his testimony the Senior Director of Transmission Asset Management at the time of the Camp Fire, stated that the formulation of strategies by TAM relied, in part, on the assessment of risk. He defined “Risk” as “the probability and consequence of an event occurring.” He defined probability as the “likelihood of something happening” and consequence as “the impact of that event occurring.” He defined consequence as the result of an event occurring measured by impact on safety, impact on reliability and impact on the environment.

The Camp Fire investigation focused on two types of risk; risk of equipment failure and risk of fire.

A. Risk of Equipment Failure

The recommendations of the 2010 Quanta reports focused on ways to minimize the risk of equipment failure. In summary, the Quanta reports stated wear is a product of age and failure is a product of wear. All of the complex statistical analysis in the Quanta reports boiled down to the fact a large percentage of PG&E’s transmission assets were very old and needed extra attention. Despite hiring Quanta to assess and analyze its transmission assets and make recommendations, PG&E ignored those recommendations. According to internal PG&E documents, in 2010 a committee was assigned to review and comment on the Quanta reports. Numerous current and former TAM personnel who were part of that committee were interviewed. None of the former committee members could recall who made the decision to disregard the recommendations of Quanta or why. The Senior Director of Transmission Asset Management, who was not on the committee and was not assigned to TAM in 2010 testified regarding the Quanta reports:

“The Quanta study did not look at asset data from those utilities but rather business practices from those utilities. The only age information and corresponding failure data that was used in that study was associated with the subset of assets that failed in a two-year period within PG&E and made some assumptions that made the statistical analysis incorrect. So it wasn't sufficient for us to justify significant amounts of investments in the future, and we needed to do additional analysis in order to build the case for our regulators to be able to justify requesting authorization to be able to make additional investments in the infrastructure based on the results of that bullet point at a later date.”

Although the Senior Director of Transmission Asset Management was dissatisfied with the Quanta reports, information from the Quanta reports was used and cited in numerous subsequent TAM documents, including documents produced by himself.

PG&E internal documents and reports and a report filed with the CPUC clearly established PG&E was aware of the risk of equipment failure. In an undated internal PG&E draft report entitled “Transmission Overhead Conductors¹¹⁷” it was stated, “The major root cause of conductor failures is Equipment Failure (35%).” The report also stated inspections and maintenance performed according to the ETPM “are not preventing equipment failure due to wear, corrosion and other factors on conductors and associated equipment (splices).” The report also addressed the use of infrared inspections on transmission conductor: “In most cases, Infrared Inspections identify faults with components just prior to failure. Ariel (sic) inspections are conducted annually. This proactive approach yields little results.” No final copy of this report was located and it is unknown why this report was drafted and to whom this report was distributed.

In another undated, unattributed internal report entitled “EO¹¹⁸ Transmission OH¹¹⁹ White Paper¹²⁰” the effects of equipment failure was again discussed. Whereas the Transmission Overhead Conductors was focused on conductor failure and how to mitigate/reduce the number of conductor failures, the EO Transmission OH White Paper focused on outages and how to reduce outages to improve reliability metrics. According to the OH White Paper, at the time of writing, conductors 105 years old were still in service. According to the OH White Paper, “The root causes of about 85% of the outages due to conductors from 2007 to 2012 can be attributed to trees, hardware, conductor, wind and snow...” Under the heading “Existing Conductor Strategy” the report reflects the strategy “is primarily Run to Failure (RTF), supplemented by” “periodic condition assessment and maintenance” and “program of targeted reliability improvements focusing on poorly performing lines which contribute the most to SAIFI.”

In November, 2017 PG&E filed the 2017 Risk Assessment and Mitigation Phase Report (RAMP)¹²¹ with CPUC. Chapter 10 of the RAMP was dedicated to, non-wildfire risks of the electric transmission overhead system. The RAMP looked at the known risks (identified as risk drivers) to the electric transmission system and explains how PG&E is mitigating those risks. The RAMP identified “Equipment Failure – Connectors/Hardware” as a significant risk. “Deterioration of connectors, splices or other connecting hardware that results in wire down events. This driver was associated with 28 out of 279 (10.0 percent) wire down events from 2012-2016, or an average of 5.7 events per year.” Efforts to mitigate the risk of Equipment Failure – Connectors/Hardware are divided into past (2016), present (2017-2019) and future

¹¹⁷ The author of the report is not identified and was not identified during the investigation. Based upon content it appears the report was written in 2013

¹¹⁸ EO is the PG&E abbreviation for Electric Operations.

¹¹⁹ OH is the PG&E abbreviation for Overhead.

¹²⁰ The author of the report is not identified and was not identified during the investigation. Based upon content it appears the report was written in 2014

¹²¹ Although not specific to equipment failure, the RAMP stated “Much of PG&E’s transmission infrastructure was constructed in the years following WWII. As such, many assets are nearing “end of useful life”. As these of assets near the end of their expected useful lives, PG&E will need to increase its level of asset replacements to avoid degradation in overall customer reliability and system performance.” Construction of the Caribou-Palermo line began in the months (six months) following WW1.

(2020-2022). The mitigations listed are “Inspection and Maintenance,” “Overhead Conductor Replacement” and “Insulator Replacement.”

The 2018 AMP also addressed equipment failure. The 2018 AMP used and defined the term “Risk Driver.” The definition includes reference to equipment failure:

“A risk driver is defined as an element which alone or in combination with other drivers has the intrinsic potential to give rise to risk (which can be a single risk or multiple risks). There are 83 risk drivers related to transmission overhead line assets. Though there are many risk drivers, common drivers for transmission line overhead assets include equipment failure, vegetation, natural hazards (wind, snow, earthquakes, etc.) and third-party contact. These risk drivers enable PG&E to evaluate the controls that are in place and to strategically allocate resources to programs that strengthen these controls or create new controls to mitigate these risks.”

According to the 2018 AMP “Conductor or connector/hardware failures account for 37% of all wire down events.” The AMP also stated 25% (26 of 103) of wire down events 2013-2017 were caused by failure of “connector/hardware and 42% (44 of 103) of wire down events 2013-2017 were caused by conductor failures.

The documents prove beyond any doubt that PG&E was aware of the risk of equipment failure causing conductor failure or “wire down events.” The undated draft Transmission Overhead Conductors established that at least one person within PG&E TAM was aware that inspections and patrols being done pursuant to the ETPM were doing very little to identify and prevent equipment failures.

B. Risk of Fire

Since, at least 2007, fire has been identified as the number one risk for PG&E. Chapter 11 of the 2017 RAMP stated:

“PG&E defines wildfire risk as: PG&E assets may initiate a wildland fire that endangers: the public, private property, sensitive lands, and/or leads to long-duration service outages.

PG&E has designated wildfire as an enterprise risk (in addition to being a top safety risk) since 2006. This risk is reviewed annually by the Safety, Nuclear and Operations, Committee of PG&E’s Board of Directors. PG&E’s exposure to wildfire risks continues to escalate despite increasing investment in compliance and public safety programs given various environmental and human factors. The most notable investments are the T&D routine VM work and the CEMA VM work related to the drought and the ongoing tree mortality state of emergency.

The CEMA work investment alone amounts to \$190 million in 2016 and \$208 million in 2017.¹⁴ Environmental variations, such as drought conditions or periods of wet weather that drive additional vegetation growth and wildfire fuel increases, can influence both the likelihood and severity of a wildfire event.

Although vegetation management is rightfully a focus of PG&E's fire mitigation efforts, equipment failure was also identified as a significant fire risk. According to PG&E statistics included in the RAMP, 33% of fires initiated by PG&E assets were caused by equipment failure. Vegetation management caused 37% of fires initiated by PG&E assets. The RAMP breaks equipment failure into three categories: 1) conductor; 2) connector/hardware; and, 3) other. Equipment failure – connector/hardware is defined in the RAMP as “Failure of connectors, splices, or other connecting hardware resulting in wire down and fire ignition.” Equipment Failure – Connector/Hardware risk driver accounts for 6 percent of 243 ignitions, or 15.5 per year.

Similar to Chapter 10 discussed above, Chapter 11 of the RAMP identified fire mitigation efforts as past (2016), present (2017-2019) and future (2020-2022). Although the RAMP listed extensive fire mitigation efforts done, being done, or planned to be done, none directly addresses the risk of connecting hardware failure.

The 2017 RAMP was not the first PG&E document that connected equipment failure – connectors/hardware to fire. The draft Transmission Overhead Conductors cited fire risk in a discussion of the “Bolted Connector Program.” The Bolted Connector Program was apparently¹²² a name given to the replacement of bolted, parallel groove connectors, which began prior to 2009. As to the Bolted Connector Program the report sets forth: “M&C¹²³ only replacing bolted connectors during routine or emergency work with to those components identified during infra-red inspection or in areas identified as high fire risk.”

PG&E records also document a previous equipment failure – connector/hardware on the Caribou-Palermo line. The 2007 Rock Fire was caused by the failure of a connector on a Caribou-Palermo line.

The evidence clearly establishes, beyond a doubt, PG&E was aware of the causal relationship between fire and equipment failure on transmission towers. The vast majority of PG&E initiated fires were caused by something (a tree, an animal, a person, the ground, or a steel structure) coming into contact with an energized conductor. The entire purpose of the electric transmission system is to move electricity from point A to point B through the conductor. The entire purpose of all of the components of the overhead transmission system, except the conductor, is to keep the conductor safely hanging in the air. Essential to keeping the conductor hanging in the air is the hardware that connects the conductor to the structure. PG&E knows that if that hardware breaks the result is a wire down event. Despite all of this knowledge PG&E did absolutely nothing to identify and replace the worn hardware essential to keeping the conductor safely in the air.

¹²² This is the only reference to the Bolted Connector Program found in records provided by PG&E. Based upon the description of the program it refers to the replacement of bolted, parallel groove connectors.

¹²³ Maintenance and Construction

XIV. San Bruno

Early in the Camp Fire Investigation, San Mateo County District Attorney Stephen M. Wagstaffe generously and graciously assigned Senior Inspector James Haggarty to assist in this investigation. Senior Inspector Haggarty was the lead investigator on the San Bruno explosion and an expert on investigating PG&E. Senior Inspector Haggarty immediately began seeing parallels between PG&E Gas Transmission operations prior to the San Bruno explosion and PG&E Electric Transmission operations prior to the Camp Fire.

On September 9, 2010, a PG&E gas transmission line buried beneath a residential neighborhood in the City of San Bruno ruptured and exploded. The explosion and ensuing fire killed eight people, destroyed 35 structures and damaged many more. In 2014, after three years of investigation by city, county, state and federal law enforcement PG&E was federally indicted for multiple federal felony counts. PG&E was later found guilty of five felony counts by a federal jury in the Northern District of California. A transcript of the jury trial testimony and copies of all admitted exhibits were obtained from the Federal District Court in San Francisco. During that trial, testimony established two relevant factual issues: 1) PG&E record keeping was flawed; and, 2) PG&E inspection policies for the gas transmission lines were budget dependent.

During the San Bruno investigation and subsequent trial, the flaws in PG&E's historical records were exposed. Evidence established that for many of the older gas transmission lines PG&E had few records. Many of those gas transmission lines had been acquired from other gas companies and PG&E never made an effort to examine, evaluate and catalogue the components of those lines. Instead, PG&E used "assumed values" instead of inspecting the actual line to determine true values.

Similarly, during the Camp Fire investigation the evidence established that the Caribou-Palermo line was purchased from Great Western Power in 1930, and PG&E never made any effort to examine, evaluate and catalogue the line components.¹²⁴

The San Bruno investigation also established that PG&E was making inspection policy decisions based on budget. Testimony and documents presented during the Federal jury trial clearly established in the years prior to the San Bruno explosion, PG&E used the least expensive inspection method to inspect older gas transmission lines, including the San Bruno line that ruptured and exploded. The chosen inspection method was less expensive in two ways: 1) it was less expensive to execute; and, 2) it was not designed to actually detect pipe integrity flaws that would require immediate and costly repair or replacement. Prior to the Camp Fire, for the Caribou-Palermo line PG&E utilized the least expensive inspection method (air patrols) in a

¹²⁴ In a written response to a CPUC data request PG&E states "PG&E has not historically maintained an inventory of suspension hooks or their manufacturers, age or material composition. As a result, PG&E does not have an inventory of all transmission and distribution facilities in the entire PG&E service territory organized by location and the presence of suspension hooks similar to the Incident Location 1 suspension hook. Suspension hooks are common hardware on transmission structures and occasionally are used on distribution structures. In PG&E's service territory, there are in excess of 50,000 steel transmission structures, most of which have multiple suspension hooks of some type supporting insulators and other equipment. There are also suspension hooks on many of the nearly 100,000 non-steel transmission structures in PG&E's service territory. There are more than two million distribution poles in PG&E's service territory."

manner guaranteed not to detect any problems that would require immediate and costly repairs. Because troubleshooters were not finding safety problems requiring repairs, PG&E was able to devote capital budget funds to projects focused on improving reliability metrics.

The evidence uncovered during the investigation and presented during trial clearly established the San Bruno explosion was the direct result of the fact that, because of faulty record keeping, PG&E was unaware of the potential threat/defect in the San Bruno pipe. Because PG&E intentionally used an inspection method that could not detect the potential threat/defect, the threat/defect was not found.

XV. THE BUTTE FIRE

On September 9, 2015, a pine tree fell onto an energized PG&E distribution line in Amador County sparking the Butte Fire. The Butte Fire burned over 70,000 acres in Amador and Calaveras Counties, killed two people and destroyed hundreds of structures. Cal Fire conducted an investigation of the origin and cause of the Butte Fire. PG&E was not criminally prosecuted for the Butte Fire. A civil suit was brought against PG&E by the victims of the Butte Fire in the Sacramento County Superior Court. Early in the Camp Fire Investigation, records from the Butte Fire civil suit, including investigative reports and deposition transcripts, were obtained and reviewed.

The investigation into the Butte Fire focused on the PG&E vegetation management practices in the Stockton Division. Similar to the ETPM in the transmission division, PG&E had written policies for distribution vegetation management. Much like the Camp Fire investigation, the evidence uncovered during the Butte Fire investigation established as a result of reductions of the vegetation management budget, the written vegetation management policies were not being followed; vegetation management inspections and patrols were being conducted by unqualified, untrained, inexperienced personnel;¹²⁵ and PG&E was instructing those tree inspectors to ignore all but the most dangerous conditions. Additionally the evidence established PG&E had no quality assurance programs to monitor and evaluate the vegetation management program. As with the transmission inspection and patrol policies in effect at the time of the Camp Fire, PG&E relied solely on the observations of unqualified, untrained and inexperienced inspectors to identify dangerous conditions.

XVI. DROUGHT AND WIND

Since at least 2013, PG&E was aware of increased risk of catastrophic wildfires. Chapter 11 of the 2017 RAMP begins:

“Extreme weather, extended drought and shifting climate patterns have intensified the challenges associated with wildfire management in California. Environmental extremes, such as drought conditions followed by periods of wet weather, can drive additional

¹²⁵ The vegetation management program was conducted by hired contractors.

vegetation growth (fuel) and influence both the likelihood and severity of extraordinary wildfire events.

Over the past five years, as we have seen across California, inconsistent and extreme precipitation, coupled with more hot summer days, have increased the wildfire risk and made it increasingly more difficult to manage.

The risk posed by wildfires has increased in PG&E's service area as a result of an extended period of drought, bark beetle infestations in the California forest and wildfire fuel increases resulting from record rainfall following the drought, among other environmental factors. Other contributing factors include local land use policies and historical forestry management practices. The combined effects of extreme weather and climate change also impact this risk."

According to the United States Geological Survey¹²⁶ three of the five worst droughts¹²⁷ in California history have occurred since 2001. The three droughts listed are 2001-2002, 2007-2009 and 2012-2016. According to the U.S Drought Monitor¹²⁸ in 2012 the Feather River Canyon was classified as "Abnormally dry." By 2013 the Feather River Canyon was classified as "Severe Drought." By 2014, and through 2015, the Feather River Canyon was given the highest drought classification: "Exceptional Drought"

According to an internal PG&E presentation from late 2013 entitled "Wild Fire –Enterprise Risk", PG&E was already aware of the heightened fire risk. "Wild Fire risk in California is increasing due to weather conditions and resulting record low fuel moisture content. Fire activity has seen a significant increase in 2013 as compared to 2012 with PG&E responding to 36% more fires YTD. Acreage impact as compared to 2012 is almost doubled."

According to the presentation PG&E created "administrative zones for areas at highest risk of a major wildland fire and proactively addresses these areas through operational and asset management standards. Current administrative wildland fire boundaries encompass geographies which exhibit a combination of active fire history, fire prone vegetation, terrain that promotes rapid fire spread, and/or locations specified by existing regulations for special treatment." The presentation includes a map of "Wildfire Administrative Areas at PG&E." The Feather River Canyon, from approximately Beldon to Lake Oroville appears to fall within a Wildfire Administrative Area. Under the title "Lessons Learned: Previously-Approved Mitigation Activities" bolted connector inspection/replacement is listed with the note "Wild Fire zones are now a consideration for program rollout prioritization."

Also in 2013 PG&E published the "Wild Fire Administrative Zones in PG&E's Service Area" map. According to this map the Feather River Canyon is falls within an "Other Wildfire Area." In 2014 PG&E Transmission Asset Strategy compiled a list of all transmission structures located within the boundaries of a designated wild fire area. Approximately 85 towers on the Caribou-Palermo line between the Butte-Plumas County line and the Big Bend Substation were included

¹²⁶ ca.water.usgs.gov

¹²⁷ measured by precipitation and runoff

¹²⁸ <https://droughtmonitor.unl.edu>

on the list. Tower 27/222 for some unknown reason was not on the list, but Towers 22/187 through 23/192 (which did not exist in 2014 because they had collapsed in 2012) were listed.

According to PG&E documents, including publicly available reports, PG&E has its own meteorological department and continuously monitors data from both its own weather stations and government weather stations. The closest weather station to Tower 27/222 is the Jarbo Gap RAWS¹²⁹. Meteorologist Kris Kuyper analyzed data from the Jarbo Gap RAWS, as well as other government sources including the National Oceanic and Atmospheric Administration and the U.S. Drought Monitor and PG&E. According to Kuyper's analysis, although the winter of 2016-17 was very wet and broke the 2012-16 drought, the winter of 2017-18 was dry "abnormally dry." Although the season as a whole was abnormally dry, March and April were wet. As a result of spring rains, native grasses grew in abundance. In May the rain disappeared.¹³⁰ From June 1, 2018 through November 8, 2018, there was no measurable rain in Paradise.¹³¹

Because of the lack of rain, by November 8, 2018 the EDDI¹³² listed the Feather River Canyon in the ED3 or ED2 drought categories¹³³. Based upon the lack of rain and the EDDI statistics, Kuyper opined that the dry air was "taking moisture from the plants, draining the plants of their moisture, making them even drier than they should have been." As a result, on November 8, 2018 the Feather River Canyon was approaching "record dry levels of fuel (trees, shrubs, bushes, grasses)."¹³⁴

According to data from the Jarbo Gap RAWS station from 9:13pm on November 7, 2018 until 5:13am on November 8, sustained winds were between 24 mph and 32 mph with gusts between 41 mph and 52 mph. According to Kuyper this wind pattern was not unusual for Jarbo Gap. Based upon analyzing six years of wind data from the Jarbo Gap RAWS Kuyper determined that Jarbo Gap experiences this wind pattern approximately 20 times per year,¹³⁵ the majority of which occur from October through February.¹³⁶

According to Kuyper, the Jarbo Gap winds occur as the result of a difference in atmospheric pressure between east of the Sierra Nevada and west of the Sierra Nevada. Higher pressure over the Great Basin in Nevada forces air west, towards lower pressure on the west side of the Sierra Nevada. The Sierra Nevada blocks this, except through gaps and passes such as the Feather River Canyon. The air is then channeled through the gaps and passes, which accelerates the flow of air. Cold air flowing downhill also causes acceleration.

¹²⁹ Remote Automated Weather Station

¹³⁰ Average rainfall in Paradise area in May is approximately .5". May, 2018 rainfall for Paradise was .14".

¹³¹ Average rainfall in Paradise area in October is approximately 3".

¹³² Environmental Demand Drought Index, esrl.noaa.gov

¹³³ On a scale of 0 – 4. 0 being normal, ED2 is defined as "Severe Drought." ED3 is defined as "Extreme Drought." 4 being "Exceptional Drought."

¹³⁴ <https://gacc.nifc/oncc/fuelsFireDanger.php>

¹³⁵ From 2013-2019, 118 individual events with wind gusts over 45mph, 66 individual events with wind gusts over 50 mph.

¹³⁶ October averages more than 5 events per month, November averages under 2.

Internal PG&E records established PG&E has known since the mid-1980s that high winds constitute a serious threat to its electric transmission assets. In 1990, PG&E Research and Development published the “Extreme Wind Speed Estimates Along the PG&E Transmission Line Corridors” report. The report was the result of a five year study, recommended by the CPUC, “to assess the adequacy of PG&E’s power wind loading design criteria” after five separate incidents in which transmission line assets were toppled during wind storms in 1982 and 1983. The report mainly focused on the 500kV transmission line corridors. According to the report “Electric transmission lines in the PG&E service area were originally designed to withstand wind loadings associated with 1-minute average gusts to 57 miles per hour (mph). The report concludes the original PG&E wind loading criteria for transmission lines was inadequate at some locations and needed upgrade. According to the reports, from November 1984 through November 1985 PG&E had wind meters installed at the Cresta Reservoir and the Rock Creek Reservoir in the Feather River Canyon. Both locations recorded gusts in excess of 50 mph hour in November, 1984 (54.6 mph) and February, 1985 (70.9 mph).

In 1999, PG&E Technical and Ecological Services published an updated “Extreme Wind Speed Estimates Along the PG&E Transmission Line Corridors.” The report stated “Electric transmission lines throughout the PG&E service area were originally designed to withstand wind loadings of 70 miles per hour.” No explanation was given as to why the original wind loading design increased from 57 miles per hour (as stated in the 1990 report) to 70 miles per hour between 1990 and 1999. Although not stated as a justification for the update, the report did note that severe storms in January, March and December of 1995 caused approximately \$100 million damage to electrical transmission and distribution systems. The report mainly focused on the 500kV transmission line corridors and Bay Area, while noting a lack of wind data from the Sierra Nevada and northeastern areas. The report did include the 1984-85 wind speed data from the Rock Creek and Cresta reservoirs.

The 1999 report included a section entitled “Santa Ana Type Winds.” According to the report Santa Ana type winds occur because “High pressure frequently forms in the Great Basin area of the Rockies in the vicinity of Utah and Nevada during winter months. When pressure builds beyond a critical point, air spills through the mountain gaps, gaining momentum as it flows to lower elevations.” The report recognized although mainly thought to be a Southern California phenomenon, Santa Ana type winds do occur in Northern California, mainly in the Tehachapi region near Bakersfield.

In 2015, PG&E Applied Technology Services published the “Extreme Wind Speed Estimates Across the PG&E Service Territory” report. This report updated and built upon the previous wind reports. According to the report “major wind storms” occurred in December, 2005, January, 2008, October, 2009 and January 2010. The report did not mention the December, 2012 wind event that toppled five Caribou-Palermo line towers.¹³⁷

The 2015 wind report refers to “Offshore/Northerly Wind Events.” According to the report:

¹³⁷ According to historical wind data for RAWs available at <https://wrcc.dri.edu> the maximum wind gust speed recorded by Jarbo Gap RAWs on December 21, 2012 was 30 miles per hour.

These events occur when surface high pressure develops north or east of the territory, which sometimes occurs as storm systems bypass California to the north and drop southeast of the territory generally east of the Sierra Nevada. This pattern produces a northerly to easterly pressure gradient and offshore winds. When flowing downhill these winds are known as ‘katabatic’ winds and are also named by geographic location in some instances (e.g. Diablo, Mono).

The wind report does not recognize the Feather River Canyon/Jarbo Gap winds. The wind report does conclude:

“The quality and precision of the data is proportional to the density of weather stations in the analysis and is generally higher in the Bay Area and Central Valley where station coverage is robust and lower in the Sierra Nevada and Coastal Ranges. Since wind speeds were produced from the RAWS in the more remote terrain in the Sierra Nevada and north and south Coast Ranges and since RAWS are more often located in more exposed terrain, the isotachs¹³⁸ ... typically represent ridge top winds.”

According to the report the “most notable offshore wind event in recent history occurred on November 30 to December 1, 2011, which produced katabatic winds across the Sierra Nevada and the elevated terrain of the Bay Area and Central Coast. Wind gusts from 40-60 mph were observed across the central and southern Sierra Nevada foothills...” According to historical wind data from the National Oceanic and Atmospheric Administration gusts of 66 mph were recorded at Jarbo Gap on November 30, 2011.

The report also concluded “Offshore or Northerly wind events are typically associated with extreme fire danger and can be strong enough to produce widespread damage to distribution and transmission infrastructure.”

This natural phenomenon has been occurring for many years. Exponent also analyzed the wind in the Feather River Canyon. According to the Exponent Report, the Caribou-Big Bend section of the line experienced the highest average wind speed, the highest average time at high wind conditions and the highest percentage of towers that experience more than 605 hours of high wind conditions per year of the comparison transmission lines.

During its investigation, the CPUC asked PG&E if PG&E had “ever done a wind loading study” on Tower 27/222. In its written response¹³⁹ PG&E stated “A wind loading study was completed as part of the initial installation of the transmission line between 1919 and 1921” and “PG&E’s understanding based on its records is that no additional wind loading studies were performed on the two towers (27/222 and 27/221) since the installation of the transmission line between 1919 and 1921. PG&E’s transmission line design criteria do not require analysis on structures for which no significant work is proposed.” According to the design criteria listed in PG&E’s written response, the towers were designed to withstand winds of approximately 56 miles per hour. During the short period of time that wind meters were installed at the Cresta Reservoir and

¹³⁸ An isotachs is a line on a map connecting points of equal wind speed.

¹³⁹ CPUC Data Request SED-002, Question 27.

the Rock Creek Reservoir in the Feather River Canyon, PG&E recorded wind gusts over 70 miles per hour. From 2013 to 2019 the Jarbo Gap RAWS station recorded wind gusts over 50 miles per hour over 60 times. Despite the fact the towers of the Caribou-Palermo line were routinely subjected to winds at or near their design criteria, PG&E never inspected or tested any of the towers or components for wind damage.

Based upon the meteorological data, PG&E knew that the Feather River Canyon was a drought ravaged tinderbox. Based on their own reports, PG&E also either knew or should have known the Feather River Canyon experiences katabatic winds during the fall when the fire danger is highest. Despite its own meteorological data, PG&E chose not to replace the aged and deteriorating conductor and components on the Caribou-Palermo line.

XVII. PUBLIC SAFETY POWER SHUT-OFF

On November 6, 2018, PG&E issued a Public Safety Power Shut-Off (PSPS) notice to approximately 70,000 PG&E customers in nine California counties, including Butte. The PSPS notified customers of potential de-energization of power lines on November 8, 2018, based upon meteorological forecasts. On November 6 and November 7 PG&E went to great lengths to notify customers in the nine counties of the potential de-energization¹⁴⁰ on November 8, 2018. On November 8, 2018 PG&E decided not to de-energize power lines.

An initial focus of the Camp Fire Investigation was the decision by PG&E not to de-energize power lines in the Feather River Canyon prior to ignition of the Camp Fire on November 8, 2018.

The PG&E PSPS Policy was enacted in September, 2018. A PSPS guide was published on the PG&E website {[Attachment - Public-Safety-Power-Shutoff-Policies-and-Procedures-September-2018](#)} in September 2018. PG&E's PSPS Policy was enacted based upon a CPUC decision in July, 2018¹⁴¹ to allow electrical utilities to pro-actively de-energize¹⁴² at-risk power lines during wind events. The PSPS guide publicly available on the PG&E website broadly described the meteorological conditions necessary for de-energization. The publicly available PSPS guide used the term "power lines" and did not differentiate between distribution and transmission lines or by voltage or area.

Based upon the meteorological data, {[Attachment - Jarbo Gap Weather Station Readings](#)} the conditions in the Feather River Canyon in the hours prior to the failure of the C hook on Tower 27/222 exceeded the wind conditions necessary for de-energization under the publicly posted PSPS guidelines.

However, the Butte County DA obtained copies of the PSPS policy filed by PG&E with the CPUC. The actual PSPS policy was much more detailed and specific than the guide published

¹⁴⁰ In layman's terms shutting off the power.

¹⁴¹ CPUC Resolution ESRB-8.

¹⁴² In layman's terms shutting off the power during high wind events to avoid fires caused by contact between energized power lines and objects such as vegetation.

on PG&E's public website. As opposed to the publicly posted PSPS guide, the official PG&E PSPS policy differentiated between transmission and distribution lines. The actual policy specifically and explicitly exempted all 115kV, 230kV and 500kV transmission lines from the PSPS. After comparing the PSPS guide published on the website with the actual PSPS policy, it appears the authors of the public PSPS guide, in an effort to make the guide understandable to the average PG&E customer, simplified the policy to an extent that became misleading.

Additionally, the transmission and distribution lines in the Feather River Canyon were not within the area of PSPS program. According to internal PG&E documents, inclusion of 115kV transmission lines in the new PSPS program was initially considered. The committee drafting the PSPS policy explored three transmission line options: 1) all 70kV and below; 2) all 115kV and below; 3) all 70kV and below and some 115kV depending upon factors such as location within high fire threat areas. Ultimately the committee settled on all 70kV transmission lines and below and exempted all 115kV transmission lines from the PSPS program. PG&E did not provide any written documents explaining or justifying this decision. However, based upon all the documents provided, there was no evidence the decision to exempt all 115kV transmission lines and above was reckless or criminally negligent. Based upon the 2018 PG&E PSPS policy, the Caribou-Palermo line was not subject to de-energization prior to the ignition of the Camp Fire and was therefore not included in any PSPS. However if PG&E had included 115 kV lines, the Caribou-Palermo line should have been included based on the extreme wind conditions in the Feather River Canyon.

XVIII. KNOWLEDGE OF RISK/CONSEQUENCE

Internal PG&E documents show that by 2006 PG&E was aware that equipment failure (risk) causes fires. According to the October 2006 Risk Analysis of Urban Wild land Fires, written by the PG&E Enterprise Risk Management Committee, in 2005 PG&E electrical equipment failures caused 20 fires. That same document defined the Urban Wild Land Interface area as the "geographical area where structures and other human development meets or intermingles with wild land or vegetative fuels" and lists aging infrastructure as a potential "gap" in PG&E's fire mitigation efforts. Another potential gap identified by PG&E is "our asset strategy to address urban wildland fires is limited." To mitigate this potential gap the report included the following "Proposed Solutions:"

- Identify urban wildfire geographic area
- Identify quick result items such as:
 - Perform patrols/inspections just before fire season
 - Replace parallel groove (PG) connectors
 - Inspect equipment that could be high risk.

The 2009 Enterprise Risk Management Urban Wildland Fire Risk Review report written for the Executive Management Committee specifically listed as fire risk drivers:

- Failure to perform quality inspections or workmanship
- Inadequate procedures relating to fire danger
- Failure to consider local conditions in design standards

Improperly maintained equipment
Failure to replace aging equipment.

Under “Current Mitigation Activities,” the report specifically listed “Equipment maintenance and replacement programs, including patrols and inspections.”

These themes were repeated in Enterprise Risk Management (ERM) reports for several years.

“EMC: Electric T&D Asset Road Map,” an internal PG&E document believed to have been published within the company in 2010, stated:

“For more than twenty years, PG&E’s asset management practices have focused on maximizing the utilization of T&D¹⁴³ assets and reducing capital investments to the greatest extent possible. Only recently has the Company utilized an alternate approach that places a higher value on reliability and operational flexibility of the electric T&D system. It is recommended that PG&E continue this current approach to pursue a combination of measures designed to upgrade and modernize its aging electric T&D assets.”

In the section of the document entitled “Aging Assets” it is stated:

“While much has been done in the last several years to improve the design, maintenance and operations of the system, the Company’s electric T&D assets comprise an aging system that it operated close to its design capacity limits. Many of our electric T&D facilities were installed in the 1950s and planned lifetime design for these facilities is 40 years. Continuing to rely on aging facilities has increased the Utility’s risk of equipment failure and extended service interruptions. Additionally, the repair time and costs for failed equipment is much higher than planned replacement.”

In December 2018, in response to questions from the Honorable William Alsup, Judge of the United States District Court, Northern District of California, PG&E submitted to the Federal District Court a list of all fires caused by PG&E 2014-2017. 2017 {[Attachment – PGE caused fire 2014-17](#)}. According to the list there were eighteen fires caused by equipment failures on transmission lines.

The list submitted to the Federal District Court did not include the 2008 Rock Fire and the 2018 Murphy Fire,¹⁴⁴ both of which occurred in the Feather River Canyon and both of which were caused by equipment failures on transmission lines. The Rock Fire was caused by the failure of a connector on a tower on the Caribou-Palermo line. The Murphy Fire was caused by the failure of a connector on a tower on the Caribou-Table Mountain 230kV transmission line. In both fires the failure of a connector allowed an energized jumper conductor to make contact with the steel tower structure and sent a shower of molten metal onto dry vegetation at the base of the tower.

In the 2017 RAMP, PG&E clearly identified equipment failure as a known cause of fire. According to section C of Chapter 11, Drivers and Associated Frequency, there were an average of 243 fires per year during 2015-16 caused by PG&E. Of those 243, on average 82.5 (33%)

¹⁴³ PG&E abbreviation for Transmission and Distribution

¹⁴⁴ The Murphy Fire occurred on August 6, 2018. The origin of the fire was directly below a PG&E transmission tower – not the Caribou-Palermo line – just west of Belden in the Feather River Canyon. The fire was caused by equipment failure – specifically failure of a connector – which allowed an energized 230kV conductor to come into contact with steel tower structure.

were caused by equipment failure. Equipment failure caused fires are broken down into Conductor (29.5 per year), Connector/Hardware (15.5 per year) and Other (37.5 per year).

The evidence clearly established PG&E has been aware of the risk/consequence connection between equipment failure and fire since at least 2005. Similarly, the evidence also clearly establishes that PG&E was aware of the risk/consequence connection between aging infrastructure and equipment failure.

In 2009 PG&E retained Quanta Technologies to review, assess and critique the electrical transmission system. In 2010 Quanta submitted to PG&E the Transmission Line Component Management Report. The report was divided into a series of individual reports. Each report focused on a component of the electrical transmission system. Not all of the reports were relevant to the risk of equipment failure on transmission towers.

Relevant individual reports and information in those reports was summarized:

Transmission Line Component Management Executive Summary

“As part of a comprehensive effort to manage its infrastructure PG&E Transmission Asset Management has begun study of all components of transmission line infrastructure, both overhead and underground, to develop an understanding of the component behavior over its installed service life. The intent of this effort is to ultimately develop an understanding of what the expected service life of line components should be, given normal operating and maintenance practices of the service life. This understanding also drives decisions of what the “normal” operating and maintenance practices should be to allow a component to survive to an “end of service life” condition, barring external events that cause sudden or catastrophic failure of a component (e.g. severe weather event, vehicular impact).”

“Certain aspects of a utility maintenance program can be characterized as following a “run to failure” philosophy. The practice of allowing equipment to fail often applies to utility equipment that is large in total population but low in overall impact to the system and/or customer reliability.”

“Run to failure as a maintenance philosophy has a place in the overall maintenance program of a utility. The equipment managed under this philosophy, however, is generally high volume, low risk facilities. Operational risk, technical effectiveness, and financial considerations drive the determination.”

Conductor and Fittings

“Based on PG&E conductor inventory data, the average age of 115 kV copper conductor on the PG&E system is 75 years. Conductor other than copper at 115 kV averages 36 years of age.¹⁴⁵”

“The overall age of conductor is a concern to most utility asset managers and the concern is based primarily in lack of knowledge of what is to be expected from aging conductor.”

¹⁴⁵ The conductor on Tower 27/222 was aluminum.

“Greatest risk of failure in transmission conductors is thought to be with the oldest steel reinforced conductors¹⁴⁶.”

Insulators

“...the failure rate of porcelain increases at a faster rate as they age beyond 50 or so years. Nonetheless, even with increasing failure rate, porcelain is only projected to a rate of 0.06 failures per at age 60.”

“Industry has come to expect a service life for porcelain and glass insulators beyond 50 years. The service life is contingent of course on the original quality and proper application of the units.”

“...lack of data consistency and accuracy result in the need for many assumptions to address data voids. Accurate information on insulator type (porcelain, glass, poly), vintage, manufacture, date of installation, and location is critical to building a dataset that will facilitate meaningful statistical analysis over the service life of the material.”

Structures

63% of the 104 electrical utilities surveyed utilized routine climbing inspections as part of inspection policy. The average inspection period for climbing inspections was 4.2 years.

44.4% of PG&E 115kV structures were installed prior to 1931.

Component service life was calculated based upon condition and environment. Environment was further divided by “Mild,” “Avg.” and “Severe.” For “Twr attachments : Susp/Jumper.” for the condition “Wear” and environment “Wind run” the component life in years is Mild – 80 years, Avg – 57 years, and Severe – 35 years.

“With recognition of the issues associated with aging infrastructure, more attention is expected to be given to steel tower condition throughout the industry.”

“Inspection, repair, and refurbishment of steel structures and associated components (guys, anchors, foundations, etc.) are a critical part of the ongoing maintenance and management of the transmission infrastructure. Normal aging and deterioration, coupled with years of inadequate inspection and maintenance, put many structure at a point of less than desired structural integrity.”

“A comprehensive maintenance and inspection program for an aging structure population should include a diagnostic testing component, particularly when structures reach and age threshold that is appropriate. That threshold varies by many factors: geographic location and associated environmental conditions, age of infrastructure, proximity to other infrastructure, historical performance of similar vintage structures in the company, etc.”

¹⁴⁶ Steel reinforced conductor has a solid steel core to increase the strength of the conductor. The conductor on Tower 27/222 was steel reinforced.

“An effective strategy for structure and foundation management would include elements such as:

Routine visual inspections by ground patrol and aerial patrol as part of general line inspection process,

Comprehensive climbing inspection at 3-5 year intervals,

....

Laboratory testing of components removed from service as part of repair or replacement work to determine overall condition and remaining strength of material.”

“For a population of structures and foundations such as exists at PG&E, the leading criterion for determining inspection and testing targets, would initially be age. With a structure population age span of over 100 years (according to inventory records), a programmed sampling of the population over 80 years of age to test structure and foundation integrity would be an appropriate beginning.”

According to Figure 9.1¹⁴⁷ the only structures still in use at the time of the report that were built prior to 1923 (87 years of age at time of report) were 115kV structures. According to a footnote to Figure 9.1 and subsequent figures in section 9, there are 6908 115kV structures for which PG&E has no age data. According to other PG&E reports there are 18,800 115kV structures in the PG&E inventory.

The evidence developed during this investigation clearly establishes that PG&E essentially ignored the recommendations of the Quanta Reports. PG&E did not adopt any new policies or procedures for inspection of the oldest transmission assets. There is no evidence of a programmed sampling of the oldest structures and foundations. Even the collapse of five Caribou-Palermo line structures in 2012 did not cause PG&E to take a closer look at one of their oldest transmission assets. In 2010 the TLine Structures Committee met to review the Quanta Reports. Neither The Senior Engineer nor the former Transmission Specialist, members of the TLine Structures Committee and “Required Attendees” of the 2010 meeting, had any recollection of the alleged meeting or any recommendations regarding the Quanta Reports made by the committee. Neither was able to shed any light on the question as to why the recommendations of the Quanta Reports were not adopted. According to the Senior Director of Transmission Asset Management, who was not involved in the TLine Structure Committee at the time of Quanta Reports, the recommendations of the Quanta Reports were ignored because “we could not rely on the information in the Quanta study.” The Senior Director explained:

“The Quanta study did not look at asset data from those utilities but rather business practices from those utilities. The only age information and corresponding failure data that was used in that study was associated with the subset of assets that failed in a two-year period within PG&E and made some assumptions that made the statistical analysis incorrect. So it wasn't sufficient for us to justify significant amounts of investments in the

¹⁴⁷ A line graph displaying the age distribution of PG&E transmission structures.

future, and we needed to do additional analysis in order to build the case for our regulators to be able to justify requesting authorization to be able to make additional investments in the infrastructure based on the results of that bullet point at a later date.”

The Senior Director of Transmission Asset Management also stated “I didn't have high confidence in the Quanta study so we intended to do additional benchmarking and collaboration in the industry in order to come up with more robust information.”

In addition to general knowledge of the problems of wear and failure in aging infrastructure, PG&E had specific knowledge that C hooks and hanger holes suffer rotational body on body wear as far back as 1987.

According to internal PG&E documents, in 1987 a transmission line crew noticed concerning wear patterns on both the C hooks and the hanger holes on the Oleum-G transmission line¹⁴⁸. The transmission line supervisor removed the C hooks and hanger holes from the tower structure and sent them to the PG&E Lab for analysis. The PG&E lab evaluated the C hooks (referred to as J hooks in the report) and hanger holes (referred to as attaching plates) and issued a Laboratory Test Report on February 9, 1987. According to the report “Both of the J-Hooks and their attaching plates had grooves worn in them and there was concern that they may not be able to hold the weight of insulator strings that are suspended from them.” The lab report included photographs of the C hooks and the hanger holes. Figure 1 of the report is a picture of one of the C hooks. According to the caption to Figure 1 “As shown in the Figure above a wear pattern was formed in the bowl-saddle of the J-hook. This was possibly caused by the insulator string swinging in the wind over a period of time.” Figure 2 of the report is a photograph of one of the hanger holes. According to the caption to Figure 2 “This figure shows the key-hole wear in the plate eye caused by the J-hook while in service.”

In 2011, PG&E transmission line crews working in the South Bay, observed similar wear on hanger holes on the Jefferson-Hillsdale transmission line. Photographs were taken of the wear and sent to PG&E engineers. After reviewing the photographs a Supervising Engineer responded via email “Looking at the photo of the hanger plate. I would recommend changing it to a new plate. It appears that there is a groove cutting into the plate probably caused by years of rubbing between the c-hook and the plate.”

In March of 2018, PG&E transmission line crews working on a transmission line in the East Bay observed similar wear on hanger holes. The transmission line supervisor, removed the hanger plates from service and sent them to the PG&E Lab for review and analysis. On June 20, 2018, the PG&E Lab issued a report entitled “Metallurgical Evaluation of Insulator Suspension Plates from the Parkway-Moraga 230 kV line at structure 020/115. The report found that “the wear was attributed to wind-driven swinging of the insulators (wind-sway).” The report opined a wear rate of .007” per year and a useful life of the hanger plates of 97-100 years based upon the wear rate and the expected strength of the remaining metal.

The evidence establishes that PG&E is aware that wear increases with age, the possibility of equipment failure increases relative to the amount of wear, and, ignition of a fire is a definite

¹⁴⁸ The Oleum-G transmission line is located in Contra Costa County, just south of the Carquinez Bridge and near the community of Valona. The Oleum-G line is one of the segments of the original Caribou-Valona line still in service. It is believed, but not confirmed that the tower from which the C hooks and hanger holes were removed was an original, 1921 Caribou-Valona tower and the worn C hooks were vintage 1921.

possible consequence of equipment failure. It is clear, based upon the internal PG&E documents that PG&E has clearly understood, at least since 2006, the correlation between aging infrastructure and fire.

The Quanta Reports and internal PG&E reports clearly established a connection between wear and inspection/patrol. From the October 2006 Risk Analysis of Urban Wild land Fires through the 2017 RAMP inspection and patrol are specifically listed mitigation to fire threat. Since 2005 PG&E electric transmission inspection, patrol and maintenance policies are set out in the Electric Transmission Preventative Maintenance Manual (ETPM). According to section 1.2 of the ETPM “Inspection and patrol procedures are a key element of the preventive maintenance program. The actions recommended in this manual reduce the potential for component failure and facility damage and facilitate a proactive approach to repairing or replacing identified, abnormal components.”

XIX. PERSONAL LIABILITY FOR PG&E EXECUTIVES

During the course of the Camp Fire investigation, many witnesses from PG&E were interviewed and examined under oath by the Grand Jury. Many, many internal discussions were had as to whether there was sufficient evidence to indict any individual PG&E personnel or executives. It was finally determined based on the current state of the law in California and the facts discovered during the investigation that there was insufficient evidence to proceed against individuals.

A. The Law:

Many people have heard of or understand the concept of “Respondeat superior” (Latin for “Let the Master answer”) in which an organization’s top executives are held **vicariously liable** for the actions/omissions of their subordinates regardless of the executive’s personal participation or knowledge. However this is a **civil concept** that does not apply in **criminal** cases. The leading California case in the area of **corporate officer criminal liability** is *Sea Horse Ranch, Inc. v. Superior Court* (1994) 24 Cal. App. 4th 446, which states: “[A]n officer of a corporation is not criminally answerable for any act of a corporation in which he [or she] is not personally a participant. In the context of negligent homicide such an officer would be said not to be liable unless he or she was personally aware of the omissions or other behavior that gives rise to the criminal negligence. The decisions involving criminal liability of corporate officers, either expressly or impliedly, focus either on the officer’s direct participation in illegal conduct, or his or her knowledge and control of the illegal behavior. **The mere fact of the officer’s position at the apex of the corporate hierarchy does not automatically bestow [criminal] liability.**”

B. The Facts:

Based upon the forensic analysis of the failed “C” hook from the suspect tower, it was the opinion of the experts consulted that the wear which caused the hook to break occurred gradually over almost 100 years. It is our belief the wear had been visible for at least 50 years. Over the past 50 years scores of PG&E employees should have been in a position to observe the wear. However, none of the employees documented the wear. Since nobody apparently noticed the wear, it would be impossible to prove any single person was negligent. Additionally PG&E

culture made decision-making “by committee” a standard, virtually eliminating individual responsibility. A “silo mentality” also pervaded the company in which departments and management groups did not share information, goals, tools, priorities and processes with each other. (E.g. The PG&E Tower Division took responsibility for maintenance of the steel tower structures. The PG&E Line Division took responsibility for the maintenance of the power lines. The “C” hooks seemed to fall between their two responsibilities – i.e. neither took responsibility for the hooks, assuming the other division was responsible, which left the hooks as orphan equipment.)

C. Conclusion:

Many of the decisions that ultimately lead to the Camp Fire were made in the 1980s, 1990s and 2000s. It would be almost impossible to prove a person making decisions in 1995 knew the decision was creating the risk of a catastrophic fire over 20 years later and either disregarded or ignored that risk. **But the corporation as an entity is tasked with that knowledge and reckless behavior and was so indicted.**

XX. ELEMENTS OF THE OFFENSES

Unlawfully Causing a Fire to a Structure/Forest land (Pen Code § 452(c))

- a. PG&E set fire to, or burned, or caused the burning of a structure or forest land or property;
- b. PG&E did so **recklessly**;
- c. The fire burned an inhabited structure or the fire caused great bodily injury to another person.

Definition of Recklessly

A corporation acts recklessly when:

- a. It is aware that its actions present a substantial and unjustifiable risk of causing a fire.
- b. It ignores that risk
- c. Ignoring the risk is a gross deviation from what a reasonable person would have done in the same situation.

Involuntary Manslaughter (Pen. Code §192(b))

- a. PG&E had a legal duty to the decedents
- b. PG&E failed to perform that legal duty;
- c. PG&E’s failure was **criminally negligent**;
- d. PG&E’s failure caused the death of decedents

Definition of Criminal Negligence

- a. Criminal negligence involves more than ordinary carelessness, inattention, or mistake in judgment. A corporation acts with criminal negligence when:

- i. It acts in a reckless way that creates a high risk of death or great bodily injury;
 - ii. A reasonable person would have known that acting in that way would create such a risk.
- b. In other words, a corporation acts with criminal negligence when the way it acts is so different from how an ordinarily careful person would act in the same situation that its act amounts to disregard for human life or indifference to the consequences of that act.

XXI. DUTY

On September 24, 2016, the Governor signed 2016 Cal SB 1028. SB 1028 added Chapter 6 to division 4.1 of the California Public Utilities Code. One of the newly created sections was 8386, which took effect on January 1, 2017. Section 8386 created a statutory duty on electrical utility companies. Section 8386(a) states “Each electrical corporation shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment.”

California Public Utilities Code section 451, enacted in 1951 and amended in 1977, states “Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.”

The California Public Utilities Commission promulgates regulations known as General Orders (GO). GO 165 section IV states “Each utility shall prepare and follow procedures for conducting inspections and maintenance activities for transmission lines.”

GO 95 includes multiple rules that apply to electrical transmission line safety, including:

1) Rule 31.1

Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service. For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.

2) Rule 31.2

Lines shall be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard.

3) Rule 18

Each company (including electric utilities and communications companies) is responsible for taking appropriate corrective action to remedy potential violations of GO 95 and Safety Hazards posed by its facilities.

4) Rule 44.3

Lines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to factors such as deterioration and/or installation of additional facilities) in Grades “A” and “B” construction to less than two-thirds of the safety factors specified in Rule 44.1 and in Grade “C” construction to less than one-half of the safety factors specified in Rule 44.1. Poles in Grade “C” construction that only support communication lines shall also conform to the requirements of Rule 81.3A. In no case shall the application of this rule be held to permit the use of structures or any member of any structure with a safety factor less than one.

XXII. CONCLUSION

The evidence developed during this investigation clearly established that the reckless actions of PG&E created the risk of a catastrophic fire in the Feather River Canyon, that PG&E knew of that risk and PG&E ignored the risk by not taking any action to mitigate the risk.

The C hook that broke was at least 97 years old. The exact age of the C hook is unknown because PG&E has no record of the hook. Ninety-seven (97) years is assumed because the Caribou-Valona transmission line, of which the Caribou-Palermo line is a segment, went into service in 1921. The records from the Great Western Power Company establish the entire line was built between 1918 and 1921. There are no records of when each tower was built. It is possible Tower 27/222 was built in 1918 and the C hook had been hanging for 100 years as of November 8, 2018. The same is true of the insulator string and the jumper conductor hanging from the C hook.

PG&E also has no records, and no idea, by whom the C hook was made, and more importantly, of what type of metal and how the C hook was made. The type of metal and the process of manufacture are what determines the hardness of metal. The transposition towers were designed to allow for movement of the conductor and insulator. The fact the C hook was constantly rubbing back forth against the hanger hole was known. The concept of body-on-body wear from constant rubbing together of two metals is a long established and well known phenomenon. Also long established and well known is the fact the various hardness of the metals rubbing together plays a key role in the body-on-body wear. The fact that PG&E relied on a 97-100 year old C hook it knew nothing about to hold an energized 115kV conductor is, by itself, negligent and reckless.

It is also disturbing that PG&E’s only information of the composition of the conductor running through Tower 27/222 comes from a 1922 article in an engineering journal. A conductor is the wire that carries electricity from Point A to Point B. A conductor is the most important component of the transmission system. Everything else in the transmission system is designed around the conductor. PG&E has owned the Caribou-Palermo line since 1930. Based upon the lack of records PG&E has never made any attempt to inventory and catalogue the conductor. The fact that PG&E was using a 97-100 year old conductor for which they knew almost nothing is evidence of absolute indifference on the part of PG&E.

Perhaps even more disturbing is the fact the conductor was aluminum reinforced with a steel core. 452.3 kcmil Aluminum Conductor Steel Reinforced to be exact. According to the Quanta report the average age of non-copper conductor was 36 years and the “greatest risk of failure in transmission conductors is thought to be with the oldest steel reinforced conductors” Although PG&E knew almost nothing about the conductor they did know it was at least 97 years old and made of steel reinforced aluminum. Despite this knowledge, PG&E did nothing and made no plans to replace that conductor. Even though because of updated NERC guidelines, PG&E was forced to replace conductor on some segments of the Caribou-Big Bend section, they elected to leave in place the 97-year-old aluminum steel reinforced conductor in other areas. The fact that the Senior Director of Transmission Asset Management preached the cost effective value of bundling projects but had no plans through 2022 to replace the 97-year-old aluminum, steel-reinforced conductor speaks volumes. What it says is that PG&E fully intended to run that conductor to failure. A reasonable person doesn’t need an electrical engineer or Quanta Technologies to tell him that failure of an energized 115kV is extremely dangerous. PG&E’s decision to leave the 97-year-old aluminum, steel-reinforced conductor in service was extraordinarily reckless.

In addition to basic engineering principles and common sense, PG&E had actual knowledge that both the C hooks and the hanger holes suffer wear and would eventually break if not replaced. At some unknown point between 1921 and 2018 somebody added the hanger plate brackets to Tower 27/222. Although there are no records of when or why the hanger plate brackets were added the only reasonable conclusion, based upon the wear observed on the original hanger holes, is somebody noticed the wear and was concerned enough to take action.

In 1987 PG&E had absolute knowledge of the wear to both the C hooks and hanger holes. The photographs in the 1987 Laboratory Report document channeling on the C hooks and key holing on the hanger holes similar to what was found on the Caribou-Palermo line. The similarities are not surprising because the transmission line on which the C hooks and hanger holes were found, the Oleum G line, was also part of the original Caribou-Valona line. The fact PG&E chose to only perform tensile strength testing in 1987 and did not subject the hooks and hanger plates to metallurgical analysis tends to show PG&E was not concerned with the wear or the expected useful life of the hooks and holes. Although in 1987 the evidence indicated at least some action was taken based upon the observed wear on the C hooks and hanger holes, when similar wear was found on hanger holes on the Jefferson-Hillsdale transmission line in 2011 the only action taken was the replacement of the hanger plates. According to the email string a PG&E Engineer correctly surmised that this wear was “probably caused by years of rubbing between the c-hook and the plate.” Based upon the reaction, or lack thereof, to the photographs of the wear it appears that the wear was neither a surprise nor was it considered a major issue by PG&E engineers.

In 2018 the discovery of keyhole wear on hanger plates on the par transmission line caused enough concern that the Transmission Line Supervisor sent the plates to the PG&E lab for analysis and evaluation. Unlike in 1987, in 2018 the lab actually did a metallurgical evaluation. A PG&E lab scientist, with a PhD in Material Science and Engineering, used the available data

to opine the keyhole wear was occurring at a rate of .007 inches per year. Based upon the average wear rate, the PG&E lab scientist determined the useful life of those hanger plates to be between 97 and 100 years. PG&E now had scientific confirmation of the body-on-body wear caused by the constant movement of the C hooks within the hanger holes and had an estimate of average wear per year. Nothing was done. The report was not distributed through the company and no targeted inspections of older C hooks and hanger holes were ordered. Based upon this report, a reasonable person, knowing they had C hooks which were 90+ years old hanging in hanger holes that were 90+ years old would have taken immediate action to determine the condition of those hooks and holes. The fact PG&E did nothing is evidence of complete and absolute indifference to the inherent danger of a C hook or hanger hole breaking.

Knowledge of the danger inherent in a C hook or hanger hole breaking is firmly established in PG&E documents. Since at least 2006, PG&E has recognized bad things, especially fire, happen when equipment failures occur on transmission lines. Everything in the overhead electric transmission system is designed to keep the conductor hanging in the air and away from persons or objects it could harm. Despite this knowledge PG&E put almost no effort into ensuring the components that keep the extremely dangerous overhead transmission lines hanging safely in the air were safe. Based upon the assertions of the PG&E personnel assigned to inspect and patrol the Caribou-Palermo line, it was not possible to assess the condition of the C hooks and hanger holes from either the ground or a helicopter flying 30 to 40 miles per hour a couple hundred feet above the line. Although claims it was impossible to assess the condition of the C hooks and hanger holes from a helicopter were completely discredited by BCDA investigators, the results of the post Camp Fire “enhanced” inspections and the Exponent Report clearly establish this was not solely a Caribou-Palermo line or Table Mountain Headquarters problem. This was a systemic PG&E problem.

During the post Camp Fire inspections, worn C hooks and worn hanger holes were found throughout the PG&E Overhead Transmission System. Despite the knowledge C hooks and hanger holes wear over time and despite the knowledge of the danger inherent in the failure of a C hook or hanger hole, the evidence clearly established nobody in PG&E was inspecting C hooks and hanger holes.

Despite the efforts of PG&E personnel to distance the company from the “Run to Failure” model, the evidence clearly establishes quite the opposite. PG&E had knowledge of the potential consequences of failure of the nearly 100-year-old C hooks, yet PG&E continued its policy of “Run to Failure.”

Because nobody was looking at and assessing the C hooks and hanger holes, there were very few, if any, notifications/tags generated for worn C hooks or hanger holes. As a result, the need for replacement of C hooks and hanger holes never came to the attention of Transmission Asset Management. The lack of verified records for many of the older, acquired transmission lines made the problem worse. In large population areas PG&E was staffed by experts, trained and qualified engineers and specialists having decades of experience. In less populated areas, Transmission Line Management was almost completely dependent upon less qualified Troublemakers, Linemen and Towermen and other personnel. For approximately ten years the

M&C engineer assigned to the rural northern area was not an actual engineer and had no engineering education, training or background.

Very little effort was made to audit the lack of findings of line personnel. Equipment failure related outages were repaired as they occurred and no effort was made to investigate the root cause of the failure. Transmission Asset Management essentially employed a strategy of either intentional or incompetent ignorance.

In essence, in 1930 PG&E blindly bought a used car. PG&E drove that car until it fell apart. The average reasonable person understands the basic proposition that older equipment needs more attention. A reasonable person doesn't buy a used car blindly and without at least a test drive. A reasonable person doesn't drive that used car for 200,000 miles without, at the very least, changing the oil and rotating the tires. A reasonable person has the common sense to know that service and maintenance become more important as the car ages and the miles accumulate.

This is, in essence what PG&E did. PG&E bought a used transmission line in 1930. PG&E knew next to nothing about the transmission line and made no attempt to learn about the line. PG&E ran the line for 88 years with minimal maintenance and repair. But for the Camp Fire, PG&E would have continued using the line with minimal maintenance and repair. Catastrophic failure of the Caribou-Palermo line was not an "if" question; it was a "when" question.

Although Quanta Technologies is well known and well respected in electrical utilities circles, the conclusions and recommendations of the 2010 Quanta Reports were essentially common sense findings. The basic findings of Quanta were that PG&E's infrastructure was aging and continued use required increased inspections and maintenance. According to the Senior Director of Transmission Asset Management, the Quanta Reports were discredited because of issues with tower failure data. The PG&E criticisms of the Quanta Reports may have been well founded, but the areas criticized have very little relevance to the ultimate conclusion that the transmission assets were old and needed more attention and care. PG&E obviously didn't take issue with the Quanta conclusions about the age of the transmission infrastructure. Transmission Asset Management continued to cite the Quanta age data and conclusions in subsequent internal and regulatory documents for the next seven years.

The evidence established that despite common sense and the Quanta Report, PG&E went the opposite direction. PG&E internal emails and documents established that by 2007 PG&E was aware of the aging electric transmission infrastructure problem. Former employees of the predecessor departments to the current Transmission Asset Management established PG&E was aware of its aging electric transmission infrastructure problem by the early 1990s.

Despite its knowledge that many of its assets were built prior to World War 2 and despite its lack of knowledge of the components of acquired electric transmission lines, PG&E had consistently reduced the frequency and thoroughness of inspections and patrols on those lines. In other, more populated areas, PG&E routinely used the fact that transmission lines were built after World War 2 to justify repair and replacement.

The 2014 RIBA process demonstrated how PG&E manipulated data to achieve desired results. It is beyond reasonable comprehension that a project to replace temporary poles not expected to stand through the winter scored lower for safety than an unnecessary project proposed solely to allow PG&E to transfer money spent from the expense budget to the capital budget. The fact that PG&E minimized and, ultimately, ignored a serious safety issue is reckless and negligent. The fact that they did so in the middle of a historic drought in an area known for consistent, extreme winds, is criminally negligent.

Despite its knowledge that its transmission assets were nearing the end of useful life and deteriorating PG&E decreased the expertise of the persons doing the inspections. This pattern continued after and in spite of the Quanta Reports. This is the exact opposite of how a reasonable person would have been expected to respond. The evidence clearly demonstrated PG&E understood the relationships between age of components and wear, wear and equipment failure and equipment failure and fire, but unlike a reasonable person, devoted less time and qualified personnel to inspecting the oldest assets.

This trend continued even in the face of the devastating effects of climate change. According to data from the US Geological Survey three of the four worst droughts in the recorded history of California have occurred since 2001. PG&E risk analysis reports, both internal and regulatory have consistently identified wildfire as the number one enterprise risk since 2006. The evidence clearly established PG&E was aware of the drought and the danger of catastrophic fire by 2013. Internal PG&E documents established that in 2013 PG&E identified the Feather River Canyon as a high fire danger area. Despite its knowledge of the increasing risk, the evidence established PG&E not only did nothing to mitigate the fire risk in the Feather River Canyon, it ignored known fire dangers for years.

Prior to 2006 PG&E had identified parallel groove connectors as a fire danger. In PG&E's 2006 "Risk Analysis of Urban Wild land Fires", the replacement of the parallel groove connectors is listed as a proposed mitigation. Unfortunately the proposal was only applied to Urban-Wildland Interface areas, which PG&E limited to the Bay Area. In the Feather River Canyon hundreds of known fire threats were left in transmission towers until 2016. Although the parallel groove connectors were ultimately replaced before causing a known fire, the fact those connectors remained in use for ten years, through two historic droughts, shows the complete disregard and indifference to the potential consequences by PG&E.

PG&E electrical transmission policies and records prior to the Camp Fire mirrored PG&E gas transmission policies prior to the San Bruno catastrophe. The investigation of the San Bruno catastrophe established that prior to the explosion, PG&E gas transmission had made very little effort to investigate and catalogue the components of the acquired gas transmission assets. Instead PG&E relied on assumed values. The San Bruno investigation also established PG&E intentionally was using the least expensive method of inspection in the least expensive manner. The chosen inspection method also saved money because problems that are not found do not need to be repaired. The investigation also established records relating to inspections, both justifying methods of inspection and the inspection reports, were fraudulent.

Somehow, the lessons of San Bruno were not learned on the electric transmission side. The evidence established that despite the lessons of San Bruno on the electrical transmission side, since 2010 PG&E has continued to rely on assumed values, the least expensive method of inspection and done nothing to ensure the veracity of inspection reports. The tragedy of San Bruno somehow had no effect on the electric transmission division. The five felonies for which PG&E was convicted changed nothing on the electric transmission side.

The philosopher George Santayana is credited with saying “Those who cannot remember the past are condemned to repeat it.” By ignoring the lessons of San Bruno PG&E condemned itself to another catastrophe. Based upon its own history PG&E knew it was creating a high risk of causing a catastrophic fire but, unlike a reasonable person, chose to ignore that risk.

Because of PG&E’s reckless and negligent decisions to unreasonably ignore risk, 18,804 structures, including almost 14,000 residential structures were destroyed – and 84 Butte County citizens needlessly lost their lives.

XXIII. SENTENCING

The court’s sentencing options are limited. As a corporation PG&E cannot be incarcerated and PG&E has indicated that it will decline probation. The only punishment available to the court is to fine PG&E. The maximum fine for a violation of Penal Code section 192(b) is \$10,000. The maximum fine for a violation of Penal Code section 452 is \$50,000. Based upon the foregoing the People urge the court to impose the maximum possible fines.

A. RESTITUTION

The People request that the court reserve jurisdiction over restitution and set a hearing in six months to review restitution in light of PG&E’s bankruptcy proceedings. In the wake of the Camp Fire many civil suits were filed against PG&E by the victims of the Camp Fire. Subsequently PG&E filed for bankruptcy in the Federal Bankruptcy Court in San Francisco. All Camp Fire civil suits and claims have been transferred to the Federal Bankruptcy Court. As of December 31, 2019, it is estimated that over 90% of the eligible Camp Fire victims have filed claims in the Federal Bankruptcy Court. PG&E has entered into a settlement agreement with all claimants in the Federal Bankruptcy Court.

Based upon consultation with bankruptcy experts in the California Attorney General’s Office, the People believe any restitution order issued by this court would be discharged in the bankruptcy proceedings. PG&E filed for bankruptcy under Chapter 11. A Chapter 11 reorganization produces a plan detailing how much various debts will be reduced. (11 U.S.C. § 1123(a)(3).) The plan applies to all debts that “arose before the date” of the confirmation of the plan by the bankruptcy court. (11 U.S.C. § 1141(d)(1)(A).) A debt arises at the time of the “conduct giving rise to the debt.” (4 Collier Bankruptcy Practice Guide (2018) § 76.03A.)

The Supreme Court has ruled that criminal restitution qualifies as a debt for bankruptcy purposes. (See *Pennsylvania Dept. of Public Welfare v. Davenport* (1990) 495 U.S. 552, 564.) Thus, restitution may be reduced or discharged in a Chapter 11 plan unless an exception applies. An exception exists for criminal fines and restitution. (11 U.S.C. § 523(a)(7); *Kelly v. Robinson* (1986) 479 U.S. 36, 53.) But the exception applies only to “individual” debtors. (11

U.S.C. § 1141(d)(2).) And exceptions for individual debtors do not apply to corporate debtors. (See *Garrie v. James L. Gray, Inc.* (5th Cir. 1990) 912 F.2d 808; *In re Spring Valley Farms* (11th Cir. 1989) 863 F.2d 832, 834; *Yamaha Motor Corp. v. Shadco* (8th Cir. 1975) 762 F.2d 668, 670.) As one bankruptcy court put it, “It is almost undebateable and universally held that a corporate Chapter 11 debtor is not subject to the” exceptions that apply to individual Chapter 11 debtors. (*In re Push & Pull Enterprises, Inc.* (N.D.Ind. 1988) 84 B.R. 546, 548 (N.D.Ind. 1988).)

Of the exceptions that apply to corporations, none includes criminal restitution. The closest exception deals with debts owed on money or property obtained by fraud. (11 U.S.C. § 1141(d)(6).) In short, criminal restitution owed by a corporation for a crime committed before the bankruptcy petition is filed is a debt that may be reduced or discharged as part of a Chapter 11 reorganization. The one court to have considered this issue reached the same conclusion. (See *In re Wisconsin Barge Lines, Inc.* (E.D. Mo. 1988) 91 B.R. 65, 67-68.)

Thus, any restitution owed by PG&E to persons harmed by the Camp Fire will be subject to reduction or discharge in a Chapter 11 reorganization. Any restitution order by this court is limited in fact, if not in law, to the final order of the Federal Bankruptcy Court and this court should await the outcome of the pending Bankruptcy proceedings.

B. Factors In Aggravation

California Rule of Court 4.421 defines factors the court may consider in making a sentencing determination. Under Rule 4.421 the court may consider the following relevant factors:

(a) Factors relating to the crime

- (1)** The crime involved great violence, great bodily harm, threat of great bodily harm, or other acts disclosing a high degree of cruelty, viciousness, or callousness;

PG&E is pleading to 84 felony counts of Involuntary Manslaughter in violation of Penal Code section 192(b) and one count of Unlawfully Causing a Fire in violation of Penal Code section 452. PG&E is also admitting Special Allegations involving Great Bodily Injury to a firefighter and two civilian victims.

The facts establish a callous disregard for the safety and property of the citizens of Butte County.

- (3)** The victim was particularly vulnerable;

There are almost 50,000 victims of the Camp Fire. All of those people relied upon PG&E to provide safe electric power. Despite years of extreme drought, consistently high down canyon winds and the knowledge equipment failure on high voltage transmission lines can

cause fires, PG&E ignored warning signs and did the absolute minimum to mitigate the fire danger.

The most vulnerable population were the mobility challenged and the elderly. People like Rafaela Andrade, Andrew Downer, Rose Farrell, Helen Pace, Ethel Riggs and Kimber Wehr had no ability to escape the fire. Those and other lives depended upon PG&E doing its statutory and moral duty.

(4) The defendant induced others to participate in the commission of the crime or occupied a position of leadership or dominance of other participants in its commission;

PG&E, although an inchoate entity, nonetheless operates only through the actions of its employees. Through a corporate culture of elevating profits over safety by taking shortcuts in the safe delivery of an extremely dangerous product – high-voltage electricity – PG&E certainly lead otherwise good people down an ultimately destructive path.

(9) The crime involved an attempted or actual taking or damage of great monetary value;

By saving money on needed maintenance, repairs, replacements was able to generate profits in the billions of dollars.

(11) The defendant took advantage of a position of trust or confidence to commit the offense.

PG&E was entrusted by the People of the State of California to provide safe and reliable electricity. PG&E took advantage of that position of trust and was able to generate billions of dollars in profit.

(b) Factors relating to the defendant

(2) The defendant's prior convictions as an adult or sustained petitions in juvenile delinquency proceedings are numerous or of increasing seriousness;

In 2016 PG&E was convicted of multiple federal felonies as a result of the 2010 explosion of a PG&E gas transmission pipe in the City of San Bruno. The San Bruno explosion killed eight people, destroyed 35 residential structures and damaged many additional residential and commercial structures. The felonies for which PG&E was convicted related to inspection policies, procedures and record keeping. Eight years later, as a result of similar reckless and criminal inspection policies, procedures and record keeping PG&E stands convicted of 84 counts of manslaughter.

(4) The defendant was on probation, mandatory supervision, post release community supervision, or parole when the crime was committed;

PG&E was on federal probation on November 8, 2018. On January 26, 2017, PG&E was granted five years' probation in United States District Court, Northern District of California case number 0971 3:14CR00175-001 TEH.

(5) The defendant's prior performance on probation, mandatory supervision, post release community supervision, or parole was unsatisfactory.

Special condition of probation number 1 states "While on probation, PG&E shall not commit another Federal, State, or local crime." While on probation, as a result of policies similar to those for which PG&E was convicted, PG&E has continued to cause disasters, including the 2015 Butte Fire, the 2017 Wine Counties Fire, the 2017 Honey Fire, the Camp Fire and, most recently, the Kincaide Fire in 2019.

C. Factors in Mitigation

a) Factors relating to the crime Factors relating to the crime include that:

(1) The defendant was a passive participant or played a minor role in the crime;

Not applicable

(2) The victim was an initiator of, willing participant in, or aggressor or provoker of the incident;

Not applicable

(3) The crime was committed because of an unusual circumstance, such as great provocation, that is unlikely to recur;

Not applicable

(4) The defendant participated in the crime under circumstances of coercion or duress, or the criminal conduct was partially excusable for some other reason not amounting to a defense;

Not applicable

(5) The defendant, with no apparent predisposition to do so, was induced by others to participate in the crime;

Not applicable

(6) The defendant exercised caution to avoid harm to persons or damage to property, or the amounts of money or property taken were deliberately small, or no harm was done or threatened against the victim;

Not applicable

(7) The defendant believed that he or she had a claim or right to the property taken, or for other reasons mistakenly believed that the conduct was legal;

Not applicable

(8) The defendant was motivated by a desire to provide necessities for his or her family or self; and

Not applicable

(9) The defendant suffered from repeated or continuous physical, sexual, or psychological abuse inflicted by the victim of the crime, and the victim of the crime, who inflicted the abuse, was the defendant's spouse, intimate cohabitant, or parent of the defendant's child; and the abuse does not amount to a defense.

Not applicable

(b) Factors relating to the defendant Factors relating to the defendant include that:

(1) The defendant has no prior record, or has an insignificant record of criminal conduct, considering the recency and frequency of prior crimes;

Not applicable

(2) The defendant was suffering from a mental or physical condition that significantly reduced culpability for the crime;

Not applicable

(3) The defendant voluntarily acknowledged wrongdoing before arrest or at an early stage of the criminal process;

PG&E plead guilty as charged to the Indictment at arraignment.

(4) The defendant is ineligible for probation and but for that ineligibility would have been granted probation;

Not applicable

(5) The defendant made restitution to the victim; and

PG&E has agreed to restitution to victims of the Camp Fire as part of a civil settlement in the Federal Bankruptcy Court.

(6) The defendant's prior performance on probation, mandatory supervision, postrelease community supervision, or parole was satisfactory.

Not applicable

(c) Any other factors statutorily declared to be circumstances in mitigation or which reasonably relate to the defendant or the circumstances under which the crime was committed.

Not Applicable

D. Conclusion

The factors in aggravation greatly outweigh the factors in mitigation. For this reason the court should impose the greatest sentence allowed under the law – the maximum fines of \$10,000 for each of the 84 counts of manslaughter and the maximum fine of \$50,000 for the count of Unlawfully Causing a fire.

Exhibit 73

Investigation: 15-08-019
U-39M
Exhibit No.: _____
Date: January 8, 2018
Witness(es): Various

PACIFIC GAS AND ELECTRIC COMPANY
SAFETY CULTURE AND GOVERNANCE OII
PREPARED TESTIMONY



PACIFIC GAS AND ELECTRIC COMPANY
SAFETY CULTURE AND GOVERNANCE OII
PREPARED TESTIMONY

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PACIFIC GAS AND ELECTRIC COMPANY
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PREPARED TESTIMONY

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PACIFIC GAS AND ELECTRIC COMPANY
SAFETY CULTURE AND GOVERNANCE OII
PREPARED TESTIMONY

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PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 1

INTRODUCTION

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 1
INTRODUCTION

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1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **CHAPTER 1**
3 **INTRODUCTION**

4 **A. Introduction**

5 My name is Nickolas Stavropoulos. I am the President and Chief Operating
6 Officer of Pacific Gas and Electric Company (PG&E or the Company). In that
7 capacity, I am responsible for the delivery of safe, reliable, affordable and clean
8 electric and gas service to 16 million people across PG&E's 70,000 square mile
9 service area in northern and central California.

10 The purpose of this testimony is to reinforce PG&E's commitment to
11 continuing to improve our safety culture and performance in public, employee,
12 and contractor safety. While PG&E has made significant, measurable progress
13 with regard to many aspects of safety over the last several years, we recognize
14 that we still have more to do. When it comes to safety, no company is ever
15 done, and neither are we. We appreciate the opportunity this proceeding has
16 provided to receive thoughtful, meaningful feedback, and we look forward to
17 taking advantage of that feedback to help inform continuing improvements to
18 PG&E's safety culture and performance and to help us on our mission to
19 become the safest, most reliable energy Company in the nation.

20 **B. Witness Qualifications**

21 I received a Bachelor's degree from Bentley University and master's degree
22 from Babson College. In addition, I have completed executive education
23 programs at Harvard and MIT. I am on the Boards of Directors for the
24 National Safety Council, the American Gas Association, and the Gas
25 Technology Institute.

26 In 2011, I joined PG&E as the Executive Vice President of Gas Operations.
27 In August 2015, I accepted the position of President of Gas Operations. I was
28 promoted to my current role of President and Chief Operating Officer of PG&E
29 effective March 1, 2017.

30 Prior to joining PG&E, I served as the Executive Vice President and Chief
31 Operating Officer for National Grid, where I was responsible for all aspects of its
32 U.S. gas distribution business. Prior to that, I was President of KeySpan Energy

1 Delivery, where I led the Company's gas line of business (LOB). Prior to joining
2 KeySpan, I held several positions at Colonial Gas Company and Boston Gas.

3 **C. Background**

4 Any discussion about PG&E's safety culture must begin with the tragic
5 San Bruno gas explosion and fire in September 2010. Since that event, PG&E
6 has looked inward to transform our leadership, governance, and processes, as
7 well as outward to benchmark and learn from companies across the country with
8 best-in-class safety records.

9 Over the past seven years, PG&E and PG&E Corporation have
10 implemented sweeping changes throughout the companies. A detailed
11 description of those changes is provided in a whitepaper, *PG&E's Safety*
12 *Journey: 2010-2017 and Beyond*, which PG&E submitted to the California
13 Public Utilities Commission's (Commission) Safety and Enforcement Division
14 earlier in this proceeding.¹ In this chapter, I want to highlight some of the key
15 changes.

16 In early 2011, PG&E announced that electric and gas operations would split
17 into separate units, each with its own senior leader in charge. This split was
18 aimed at providing more commodity-specific focus on operations and safety, and
19 creating clear lines of oversight and accountability.

20 In June 2011, PG&E's then-Senior Vice President Geisha Williams was
21 elevated to the newly created role of Executive Vice President of Electric
22 Operations for PG&E, and I joined the Company as Executive Vice President of
23 Gas Operations. In September 2011, Tony Earley—a seasoned and widely
24 respected utility leader—joined PG&E Corporation as Chairman, Chief Executive
25 Officer, and President. And over the last several years, the Company has
26 brought leaders from utilities across the country, and from various industries,
27 into all areas of the organization, including the Gas and Electric organizations.

28 Since 2011, the PG&E Corporation Board of Directors has added new
29 members with significant utility experience. To further strengthen its focus on
30 safety and operations, the Board created the Nuclear, Operations and Safety
31 Committee, led by Dr. Richard Meserve, former Chair of the Nuclear Regulatory
32 Commission, to oversee matters related to safety, operational performance, and

1 A copy of the whitepaper is attached to this chapter as Appendix 1-A.

1 compliance in the companies.² To further highlight the importance of
2 compliance, which includes safety compliance, in 2015 the PG&E Corporation
3 Board renamed its Public Policy Committee as the Compliance and Public Policy
4 Committee, and amended its charter to help assure comprehensive and
5 well-coordinated oversight of both PG&E's compliance and ethics programs and
6 the companies' management of enterprise-level compliance risks.

7 Recognizing the need to improve our safety culture, we engaged in an
8 intensive benchmarking process to learn from companies who had done so
9 successfully. We met with leaders from Alaska Airlines, Eastman Chemical, and
10 Norfolk Southern, among others, and brought several best practices to PG&E,
11 including daily operational calls (Alaska Airlines), process safety improvements
12 (Eastman Chemical), and non-punitive reporting (Federal Aviation
13 Administration, Eastman Chemical, and NS Railway).

14 Following benchmarking with General Electric, Ford, and DTE Energy,
15 PG&E launched an enhanced Integrated Planning Process in 2012, which
16 improved the integration of risk management into the planning and budgeting
17 process.³ In addition, our processes for risk management and asset
18 management have matured significantly and continue to mature. Risk
19 management processes have been established at the enterprise level, with
20 common direction across all of the LOBs. Each LOB has also worked to
21 continually improve its more detailed risk management processes.

22 When it comes to safety, PG&E's commitment to strengthening our safety
23 culture and performance is embedded in the Company's Mission, Vision, and
24 Culture that was unveiled in 2017. Figure 1-1 illustrates PG&E's newly-updated
25 mission, vision and culture statements that are the foundation of how we run
26 our business.

² Additional actions by the PG&E and PG&E Corporation Boards of Directors are described in Chapter 4.

³ A more complete description of PG&E's Integrated Planning Process is provided in Chapter 3.

FIGURE 1-1
PG&E'S MISSION, VISION AND CULTURE STATEMENTS



1 The imperative to put safety first drives a commitment to a culture in which
2 employees understand that their actions every day must reflect that priority.
3 Companywide efforts include the utilization of safety committees, including
4 Grass Roots Safety Committees that involve front line field workers at the local
5 level, and a senior leadership level safety committee which engages the
6 executive team. The Company has also redefined the Contractor Safety
7 Program, established the enterprise-wide Corrective Action Program (CAP), and
8 established a Speak Up Program to reinforce and enable our employees' and
9 contractors' commitment to improving safety culture and performance.

10 We measure our progress in safety culture and performance in a variety of
11 ways. For example:

- 12 • We have continued to pursue independent third-party verification of our
13 Company's systems and processes from a number of different global
14 organizations. Over the past seven years, PG&E's gas business has earned
15 or qualified for international certifications including ISO 55001 and PAS 55
16 (asset management), API RP 1173 (pipeline safety management system),
17 and RC 14001 (process safety). PG&E is the only North American utility to
18 currently hold these third-party certifications. In addition, our Supply Chain
19 organization has achieved ISO 9001 certification for supplier quality.

- 1 • The bi-annual employee survey, with a strong 2016 participation rate of
2 approximately 81 percent of our 23,000 employees, includes specific
3 dimensions focused on safety culture such as whether employees feel
4 comfortable discussing safety concerns with their supervisors (93 percent
5 favorable) and whether they feel free to stop work if they believe conditions
6 are unsafe (93 percent favorable).
- 7 • The Corrective Action Program that began at Diablo Canyon Power Plant
8 has now been implemented across the entire Company. One metric we
9 track from CAP is the number of submittals that are anonymous. In 2017,
10 the average anonymous submission rate was 2 percent of all issues
11 submitted to CAP. Of the issues submitted to CAP that were related to
12 safety, only 0.2 percent were anonymous. CAP's low anonymous
13 submission rate is a clear indication that employees are willing to speak up
14 and be recognized for their concerns and ideas about safety.⁴
- 15 • Performance, as measured by metrics in various areas, indicate significant
16 improvements since 2011. Examples include:
 - 17 – Gas emergency response time has decreased by nearly 40 percent to
18 top quartile performance.
 - 19 – The year-end backlog of non-hazardous workable grade two gas leaks
20 has been reduced by 99 percent.
 - 21 – Dig-ins on the gas system have been reduced by 45 percent.
 - 22 – Customer satisfaction with reliability of service has continued to
23 improve, with results in 2016 and 2017 showing the highest levels in the
24 last decade.
 - 25 – Leading indicators for occupational safety and health that reinforce the
26 desired safety culture have been developed. For example, the quality of
27 corrective actions metric focuses attention on identifying and
28 implementing actions that prevent injury. Performance has improved
29 over 100 percent in the first two years of measurement.⁵

4 More detail about the Corrective Action Program is presented in Chapter 5.

5 Improvement as of Nov 2017 since EOY results were not available at the time of this filing.

1 PG&E's commitment to driving these improvements has been demonstrated
2 in several ways, including:

- 3 • On the gas system, investment in infrastructure improvement since 2011
4 has been extensive, including replacement of over 200 miles of transmission
5 pipe and 585 miles of distribution pipe, hydro-testing over 1090 miles of
6 transmission pipe, enabling in-line inspection of 850 miles of transmission
7 pipe, and installing 291 automated valves on the transmission system.
- 8 • On the electric system, infrastructure investment has also been extensive
9 over the last five years, including replacement of over 700 miles of overhead
10 distribution conductor, 49 miles of underground distribution cable, 40 miles
11 of network cable, and over 4,300 manhole cover replacements with venting
12 covers, as well as installing or replacing over 700 miles of transmission line.
- 13 • Investment in the skills and competencies of our employees has also been a
14 strong focus. The Employee Knowledge and Skills Program has assessed
15 thousands of employees with regard to requirements to be a Qualified
16 Electrical Worker, and addressed skills gaps that were identified. In the fall
17 of 2017, the new Gas Safety Academy, a state-of-the-art facility for
18 hands-on training for gas workers, was opened in Winters, California.
- 19 • Fifty percent of the Short-Term Incentive Plan is now based on safety, which
20 is industry leading.

21 While the progress we've made has been significant, we know that there is
22 more we can do and will do to reduce risk and improve safety culture and
23 performance. One example is our effort to embark on the implementation of an
24 Enterprise Safety Management System (ESMS). Over the last several years,
25 we have seen the positive effects a safety management system can have on
26 overall safety focus and performance through the experience we have gained
27 through the implementation of the Gas Safety Excellence Program in Gas
28 Operations, and through our involvement in the creation of API 1173, the new
29 recommended practice for gas pipeline safety management systems. Based on
30 this learning, we have committed to implementing an ESMS that will establish a
31 common framework across the entire enterprise for driving performance and
32 improvement in dimensions such as safety culture, asset management, process
33 safety, environmental management, and occupational health and safety. For
34 each dimension, we plan to utilize independent standards to guide our efforts

1 and measure our progress. We believe that the extent to which we plan to
2 establish our ESMS will be industry leading and will add significantly to our
3 efforts in improving safety performance.

4 **D. Organization of Testimony**

5 The remaining chapters of testimony are organized in response to the
6 questions presented in the Assigned Commissioner's Ruling (ACR) dated
7 November 17, 2017.

8 Chapter 2 addresses the recommendations in the NorthStar Report.
9 In summary, PG&E agrees with all of the 67 recommendations and supports
10 their adoption by the Commission. PG&E has established an implementation
11 plan for the 61 recommendations directed at PG&E, included as Appendix 2-A.
12 As noted in those plans, implementation of 22 (36 percent) of the PG&E
13 recommendations is already complete and an additional 36 will have
14 implementation completed in 2018, bringing the total at that point to 95 percent
15 complete.

16 Chapter 3 addresses the One PG&E Occupational Health and Safety Plan
17 and NorthStar Data Request 144. PG&E has created a single, unified plan for
18 the Company for employee and contractor safety over the next five years, and it
19 has already begun implementing the plan. The safety initiatives that PG&E
20 described in response to Data Request 144 have, with few exceptions, been
21 completed and incorporated into PG&E's operational processes.

22 Chapter 4 addresses the PG&E and PG&E Corporation Boards of Directors'
23 actions in response to the NorthStar Report, which include amending
24 governance and related documents to enhance and clarify the Boards'
25 responsibility for overseeing safety, formalizing requirements for
26 communications on safety matters, increasing the number of Board-level
27 meetings involving the Safety and Nuclear Oversight Committees, enhancing
28 safety expertise of the Boards, and confirming Board-level authority to consider
29 safety performance when establishing executive compensation.

30 Chapter 5 addresses PG&E's CAP, including the current status of
31 implementing the program enterprise-wide, sharing of lessons learned, and an
32 early assessment of results.

Chapter 6 addresses the ACR questions regarding five safety incidents that occurred in the 2013-2015 timeframe and PG&E's actions in response to those incidents.

E. Conclusion

The provision of electricity and natural gas has certain inherent hazards and related safety implications for our employees, our contractors and the public. Due to the nature of the commodities provided by the utility industry, there will always be some risk. Our job, collectively, is to appropriately prioritize risks and responsibly reduce them. Our focus has to be to continuously improve safety performance over time. Our success, in large part, depends on our ability to create a healthy, constructive safety culture.

The quest for safety and the nature of the regulatory structure require the creation of a culture in which employees are encouraged to raise issues without fear of retaliation and in which the utility interacts with its regulators transparently and with integrity. A healthy safety culture is marked by open communication; open communication both within the utility and between the utility and its regulators.

The creation of a healthy and constructive safety culture is a never-ending journey. Our commitment to our employees and the public is that we will work with our regulators to be transparent about our challenges so that, collectively, we can learn from them and improve.

This is our commitment, and it is critical to the success of our journey: we will continually improve, we will nurture a culture of transparency and integrity, and we will always put safety first.

Exhibit 74

CAL FIRE



CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION
Amador-El Dorado Unit
2840 Mount Danaher Road
Camino, CA 95709

INVESTIGATION REPORT

CASE NUMBER: 15CAAEU024918
CASE NAME: Butte Incident
DATE: September 9, 2015
INCIDENT TYPE: Wildland Fire
INCIDENT INVESTIGATOR: Gianni Muschetto

1 **1 - VIOLATION(S):**

2
3 **Public Resources Code 4421:** A person shall not set fire or cause fire to be set to any
4 forest, brush, or other flammable material which is on any land that is not his own, or
5 under his legal control, without the permission of the owner, lessee, or agent of the
6 owner or lessee of the land.
7

8 **Public Resources Code 4435:** If any fire originates from the operation or use of any
9 engine, machine, barbecue, incinerator, railroad rolling stock, chimney, or any other
10 device which may kindle a fire, the occurrence of the fire is prima facie evidence of
11 negligence in the maintenance, operation, or use of such engine, machine, barbecue,
12 incinerator, railroad rolling stock, chimney, or other device. If such fire escapes from the
13 place where it originated and it can be determined which person's negligence caused
14 such fire, such person is guilty of a misdemeanor.
15

16 **Health and Safety Code 13007:** Any person who personally or through another willfully,
17 negligently, or in violation of law, sets fire to, allows fire to be set to, or allows a fire
18 kindled or attended by him to escape to, the property of another, whether privately or
19 publicly owned, is liable to the owner of such property for any damages to the property
20 caused by the fire.
21

22 **Health and Safety Code 13009:** (a) Any person (1) who negligently, or in violation of
23 the law, sets a fire, allows a fire to be set, or allows a fire kindled or attended by him or
24 her to escape onto any public or private property, (2) other than a mortgagee, who,
25 being in actual possession of a structure, fails or refuses to correct, within the time
26 allotted for correction, despite having the right to do so, a fire hazard prohibited by law,
27 for which a public agency properly has issued a notice of violation respecting the hazard,
28 or (3) including a mortgagee, who, having an obligation under other provisions of law to
29 correct a fire hazard prohibited by law, for which a public agency has properly issued a
30 notice of violation respecting the hazard, fails or refuses to correct the hazard within the
31 time allotted for correction, despite having the right to do so, is liable for the fire

1 suppression costs incurred in fighting the fire and for the cost of providing rescue or
2 emergency medical services, and those costs shall be a charge against that person. The
3 charge shall constitute a debt of that person, and is collectible by the person, or by the
4 federal, state, county, public, or private agency, incurring those costs in the same
5 manner as in the case of an obligation under a contract, expressed or implied.

6 (b) Public agencies participating in fire suppression, rescue, or emergency medical
7 services as set forth in subdivision (a), may designate one or more of the participating
8 agencies to bring an action to recover costs incurred by all of the participating agencies.
9 An agency designated by the other participating agencies to bring an action pursuant to
10 this section shall declare that authorization and its basis in the complaint, and shall
11 itemize in the complaint the total amounts claimed under this section by each
12 represented agency.

13 (c) Any costs incurred by the Department of Forestry and Fire
14 Protection in suppressing any wildland fire originating or spreading from a prescribed
15 burning operation conducted by the department pursuant to a contract entered into
16 pursuant to Article 2 (commencing with Section 4475) of Chapter 7 of Part 2 of Division
17 4 of the Public Resources Code shall not be collectible from any party to the contract,
18 including any private consultant or contractor who entered into an agreement with that
19 party pursuant to subdivision (d) of Section 4475.5 of the Public Resources Code, as
20 provided in subdivision (a), to the extent that those costs were not incurred as a result of
21 a violation of any provision of the contract.

22 (d) This section applies to all areas of the state, regardless of whether primarily
23 wildlands, sparsely developed, or urban.
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2 - SUMMARY:

On Wednesday, September 9, 2015, at approximately 2:26 PM, the Camino Emergency Command Center (ECC) dispatched CAL FIRE and cooperating agency units to a reported wildland fire near Butte Mountain Road and Charamuga Ranch Road east of the community of Jackson in Amador County (See Attachment #1). Fire units contained the fire on October 1, 2015. The fire burned 70,868 acres and damaged or destroyed approximately 965 structures (See Attachment #2). The fire also resulted in 2 fatalities and 1 injury.

During the origin and cause investigation I, Gianni MUSCHETTO, determined the fire was caused when a Gray Pine (Evidence Item #1) contacted a PG&E powerline conductor which ignited portions of the tree. Burning embers from this contact with the conductor dropped into the fine dead fuels below the conductor, igniting the wildland fire which burned uncontrolled onto numerous properties not owned or controlled by PG&E in violation of PRC 4421.

During the investigation I determined PG&E and/or its sub-contractors ACRT and Trees, Inc. conducted powerline vegetation management inspections and maintenance in 2014-2015 within the area of origin. They identified (October 2014) and removed (January 2015) two Gray Pines on the outer edge of the pine stand on the north side of the powerline conductor identified as being within the General Origin Area (GOA) of the fire. The removal of these two pines exposed the interior trees, including the Gray Pine (Evidence Item #1) that were previously captured and developed within the closed stand provided by those removed pines. These now exposed trees were left open to the south, towards the path of the sun and the powerlines. It is known, when a stand is altered and captured interior trees are exposed to open spaces, they are prone to failure. PG&E and/or its sub-contractors ACRT and Trees, Inc. failed to identify this during their 2014 inspection when the pine trees were identified for removal, or in January 2015 when the trees were removed, or during any subsequent inspections/maintenance conducted on that section of powerlines and poles. Failing to

1 identify the potential hazard of leaving weaker, inherently unstable trees on the edge of
2 the stand, without conducting maintenance on them, ultimately led to the failure of the
3 Gray Pine (Evidence Item #1) which contacted the powerline conductor operated by
4 PG&E and ignited a wildland fire.
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3 - SUBJECT(S):

Pacific Gas & Electric Corporation

77 Beale Street 24th Floor

San Francisco, CA 94105

ACRT Inc.

CT Corporation

818 West Seventh Street, Suite 930

Los Angeles, CA 90017

Trees Inc.

CT Corporation

818 West Seventh Street, Suite 930

Los Angeles, CA 90017

4 - VICTIM(S):

The Butte Incident burned approximately 70,868 acres within Amador and Calaveras Counties. The fire damaged and/or destroyed approximately 965 structures, resulted in two fatalities and one injury. See Attachment #2 for the initial Butte Incident Damage Inspection Summary. This summary does not account for all damage to infrastructure, mobile property, miscellaneous property improvements, natural vegetation, livestock, wildlife or other misc. damage.

WITNESSES:

OLIVARRIA, Mike
2840 Mt. Danaher Road
Camino, CA 95709
(530) 644-2345

CAL FIRE Battalion Chief

CLINKENBEARD, Jarrod
2840 Mt. Danaher Road
Camino, CA 95709
(530) 644-2345
CAL FIRE Captain

JACKSON, Garrett and GAWRONSKI, Jeff
1300 "U" Street
P.O. Box 944246
Sacramento, CA 94244-2460
(916) 445-4276
CAL FIRE Transportation Surveyors

1 PODESTA, Louie, Jr.

6 PODESTA, Louie, Sr.

11 AFFONSO, Jamie

16 CAUFIELD, Jack and Diane

21 MAHONEY, Michael

22 Independent Consultant

23 32759 Greene Drive

24 Springville, CA 93265

25 (949) 283-6439

1 [REDACTED]
2 Pacific Gas and Electric Corporation
3 12626 Jackson Gate Road
4 Jackson, CA 95642
5 [REDACTED]
6
7 [REDACTED]
8 ACRT Inc.
9 4636 Missouri Flat Road
10 Placerville, CA 95667
11 [REDACTED]
12
13 [REDACTED]
14 Trees, Inc.
15 1557 Starr Drive, Ste. C
16 Yuba City, CA 95993
17 [REDACTED]
18
19 [REDACTED]
20 Weger Fire Investigations, Inc.
21 2003 E. Parkview Ct.
22 Visalia, CA
23 [REDACTED]
24
25 CARLSON, Alan
26 Alan Carlson & Associates LLC
27 13989 Kelsey Drive
28 Chico, CA 95973
29
30
31

5 - EVIDENCE:

E-1 – Gray Pine

E-2 – Stump of Gray Pine

E-3 – Powerline Conductor

E-4 - Photographs

E-5 – Photographs received from CAL FIRE Air Attack 440

E-6 – Images from PG&E Red Corral Camera

See Attachment #9 for the LE-75e Evidence Log

1 **6 – CONDITION(S):**

2

3 **Weather:**

4

5 At scene weather conditions on September 9, 2015, at 4:50 PM:

- 6 • Temperature: 98° F
- 7 • Relative Humidity: 8%
- 8 • Wind: W to NW at 4 MPH
- 9 • Weather was taken approximately 400 feet from the SOA.

10

11 Mount Zion RAWs on September 9, 2015, at 2:56 PM:

- 12 • Temperature: 99° F
- 13 • Relative Humidity: 10%
- 14 • Wind: W to NW at 5 MPH
- 15 • Distance from RAWs to SOA approximately 4.2 miles.

16

17 Campo Seco RAWs on September 9, 2015, at 2:59 PM:

- 18 • Temperature: 106° F
- 19 • Relative Humidity: 8%
- 20 • Wind: NW at 5 MPH
- 21 • Distance from RAWs to SOA approximately 12.2 miles.

7 – EQUIPMENT:

Pacific Gas & Electric Corporation Electra 1101 Circuit (Martell 1102) powerline facilities.

8 - PROPERTY:

The Butte Incident originated on the following property:

APN: [REDACTED]

Address: Across from 17501 Butte Mountain Road, Jackson, CA 95642

Owner: Kirk Chester A & Dorothy L 1990 Trust

C/O: Jack and Diane CAUFIELD – 1021 S. Pleasant Ave, Lodi, CA 95240

County: Amador

Latitude: 38 20.339

Longitude: -120 41.704

The fire ultimately burned approximately 70,868 acres within Amador and Calaveras counties

9 - NARRATIVE:

On Wednesday, September 9, 2015, at approximately 2:26 PM, the Camino Emergency Command Center (ECC) dispatched CAL FIRE and cooperating agency units to a reported wildland fire near Butte Mountain Road and Charamuga Ranch Road east of the community of Jackson in Amador County (See Attachment #1). Fire units contained the fire on October 1, 2015. The fire burned 70,868 acres and damaged or destroyed approximately 965 structures (See Attachment #2). The fire also resulted in 2 fatalities and 1 injury.

I, Gianni MUSCHETTO, responded at the time of dispatch to investigate the fire. While responding, units were advised that powerlines were possibly down at the fire. While responding, I observed the smoke column from the fire and could see it was blowing in a southeast direction due to a north/northwest wind. The smoke was light gray in color when first observed and continually got darker until it was very dark gray in color. I arrived at scene at approximately 2:40 PM and saw someone in a backhoe tractor driving from 17501 Butte Mountain Road through a field towards the fire. I drove south on Charamuga Ranch Road and could see the fire was approximately 2 to 3 acres in size, burning in oak, pine and brush vegetation. The fire was advancing to the southeast towards residences and structures at the end of Charamuga Ranch Road. As I travelled south on the road I came up to powerlines that ran east to west across the road. The powerlines extended west across a field and into the area of the fire. From the road I did not see any powerlines down but I lost sight of the lines as they extended into the smoke of the fire and heavier oak and pine vegetation. As I continued south to the end of Charamuga Ranch Road I observed the head of the fire had not reached the residence at the end of the road but there were numerous spot fires igniting in the pasture and around the structures surrounding the residence. Fire units began to arrive and suppress the spot fires and make access to the main fire. I made contact with CAL FIRE Battalion Chief Mike OLIVARRIA and Fire Captain Jarrod CLINKENBEARD at the end of Charamuga Ranch Road. We immediately observed additional spot fires southeast of the residence we were at. These fires were approximately ¼ acre in size and were located below the smoke column of the main fire which was blowing southeast

1 over the Mokelumne river canyon. The spot fires were burning in the steep river
2 canyon. OLIVARRIA asked if I could help locate any access points into the steep
3 canyon to get to the spot fires. I assisted fire suppression units and returned to
4 Charamuga Ranch Road to conduct the origin and cause investigation of the fire at
5 approximately 3:30 PM. I made access to the area where I initially observed the fire
6 burning when I arrived at scene. The fires progression had been stopped in that area
7 and crews were finishing cutting line and mopping up the perimeter of that area of the
8 fire. I walked west from Charamuga Ranch Road to the eastern edge of the fire. From
9 the edge of the fire I could see powerlines ran east to west through the northern portion
10 of the fire. The powerlines appeared intact and fire units never reported finding
11 powerlines down in the area. I also saw the backhoe tractor I observed when I first
12 arrived was parked near the northeast end of the fire. I did not see the operator around
13 but could see where he attempted to scrape fire breaks on the east end of the fire. I
14 walked south along the fire line and began observing burn pattern indicators and looking
15 for evidence. As I walked around the perimeter and then back I observed burn pattern
16 indicators such as angle of char, grass stem fall, vegetation freeze and white ash
17 deposits. These macro-scale indicators showed the fires progression as advancing
18 south through the brush and trees south of the powerlines, backing north through the
19 pine and oak trees north of the powerlines and the flanks of the fire burning laterally to
20 the east and west. These burn pattern indicators were consistent with the fire behavior I
21 observed while responding to the incident and when I arrived at scene. During my walk
22 around I also observed the remains of a partially burned pile of what appeared to be tree
23 limbs located north of the powerlines along the northeast edge of the fire perimeter.
24 Based on my observations of the burn pattern indicators and fire behavior I determined
25 the GOA of the fire was an area approximately 75 feet by 75 feet in size located
26 between the stand of trees on the north side of the powerlines and the stand of trees
27 and brush on the south side of the powerlines and approximately fifty feet east of the
28 utility pole with a blue number "7" painted on it. The burned remains of the pile of tree
29 limbs I observed along the northeast edge of the fire were outside of the GOA. As I
30 walked around the perimeter of the GOA I observed burn pattern indicators and

1 continued to look for evidence. As I walked around the perimeter and then back again in
2 the opposite direction I observed burn pattern indicators along the south and southwest
3 edge of the GOA showing the fire advanced in that direction. Along the western
4 perimeter of the GOA I observed grass stem fall, sooting and protection indicators
5 showing the fire moving laterally towards the utility pole with the blue number "7" painted
6 on it. On the north and northeast perimeter of the GOA I observed angle of char,
7 protection, sooting and degree of damage indicators showing the fire backed north and
8 northeast through a stand of pine and oak trees. On the eastern perimeter of the GOA I
9 observed grass stem fall, sooting, protection and degree of damage indicators showing
10 the fire moving laterally to the east below the powerlines and to the southeast through
11 trees on the south side of the powerlines and into the predominantly grass fuels. From
12 the perimeter of the GOA I observed the overhead powerlines generally ran east to west
13 over the GOA. The powerlines consisted of three separate conductors that spanned
14 over the top of the GOA between the utility pole with a blue number "7" painted on it to
15 the west and a utility pole with a metal PG&E tag #099651 on it to the east. Within the
16 GOA I observed several burning tree stumps and logs on the north side of the
17 powerlines adjacent to the stand of pine and oak trees. I also observed a pine tree that
18 had fallen over and was lying below the powerlines. The pine tree appeared to be
19 mostly unburned and was intact. The base of the tree appeared to still be in the ground
20 and the stem of the tree was bent towards the powerlines. The lower stem (trunk) of the
21 tree was off of the ground with only approximately the top 1/3 of the tree in contact with
22 the ground below the powerlines.

23 I walked around to the south side of the GOA and entered from the advancing run of the
24 fire. I walked in an S-shape pattern across (east/west) the advancing run of the fire until
25 I identified a transition to lateral progression. I identified advancing indicators with red
26 colored flags and lateral indicators with yellow colored flags. As I moved north I reached
27 the top of the pine tree that had fallen over and was lying below the powerlines. The top
28 portion of the tree appeared to be unburned except for an approximate one foot section
29 of the stem that was burned and appeared to have sap bubbles on the stem. There
30 were also two small branches that appeared to have been burned through in the same

1 area. The rest of the top 1/3 of the tree that was in contact with the ground appeared
2 unburned. There were still green needles on the branches. I marked the burned portion
3 of the tree with a white colored flag as potential evidence. This burned section of the
4 stem appeared to have been exposed to a significant amount of heat which was not
5 consistent with the condition of the rest of the tree that was in contact with the ground. It
6 appeared this section had come into contact with one of the overhead powerline
7 conductors prior to falling to the ground. I did not observe anything on the ground that
8 would have caused the tree to burn only in that small section of the tree stem that was
9 lying on the ground. As I observed the rest of the tree, I saw the lower 1/3 of the tree
10 stem had sustained burn damage consistent with burn damage I observed on adjacent
11 trees. It appeared that the top portion of the tree was still in contact with the conductor
12 when the wildland fire burned the surface fuels causing burn damage to the base of the
13 tree and not the upper portion of the tree. I continued observing burn pattern indicators
14 and determined the Specific Origin Area (SOA) was an area approximately 10 feet wide
15 by 25 feet long located north of the center conductor of the powerlines. I conducted an
16 S-shape grid search of the SOA. I searched each lane visually and ran a magnet over
17 the area as I progressed. I continued until backing indicators were identified at the
18 stand of pine trees north of the powerlines. No evidence of an ignition source was found
19 other than the overhead powerlines and fallen pine tree that appeared to have contacted
20 a conductor. I observed each conductor of the powerlines over the SOA with
21 binoculars. There appeared to be discoloration on the northern most conductor over the
22 area where the pine tree was lying below the powerlines. I did not observe any
23 discoloration or damage to the other two conductors. (See Sketch, Attachment #3).
24 At approximately 4:50 PM I took the weather at scene. I took the weather from outside
25 of the fire perimeter in the area east of the fire (See RAWs Data, Attachment #4). After
26 taking the weather I began taking digital photographs of the scene (See Attachment #5).
27 CAL FIRE Captain Nate BARCKLAY arrived at scene and walked to my location.
28 BARCKLAY assisted me with taking measurements within the GOA. We measured the
29 length of the tree that had fallen and was lying below the powerlines. We measured
30 along the stem of the tree from the ground at the base of the tree to the top of the tree

1 which was lying on the ground. The tree measured at approximately 44' 2" in height.
2 We measured along the ground from the base of the tree to the northern most powerline
3 conductor where I observed discoloration on the conductor. The distance measured at
4 approximately 23' 6". We also took a measurement from that location under the
5 conductor to the utility pole with the blue #7 painted on it. The distance measured at
6 approximately 105' 3".
7

8 At approximately 5:30 PM two men walked over to my location from the direction of a
9 residence along Butte Mountain Road. I recognized one of the men as Louie PODESTA
10 Jr. who works for the Jackson City Fire Department. I made contact with PODESTA Jr.
11 who introduced me to his father, Louie PODESTA Sr. PODESTA Jr. told me he
12 reported the fire and had driven the backhoe tractor over to try and put line around the
13 fire. At approximately 5:30 PM I interviewed PODESTA Jr. separate from his father
14 (See Attachment #6). PODESTA Jr. told me the following in summary:
15

16 Louie PODESTA Jr. told me his parents lease the property where the fire started. He
17 told me he was at the barn across from 17501 Butte Mountain Road cleaning it up for a
18 wedding. He told me he saw smoke over the hill in the trees in the area where the
19 powerlines run through the trees. He looked at his cell phone log and told me he called
20 the Jackson City Fire Station at 2:21 PM to report the fire, then immediately called the
21 CAL FIRE Camino ECC to report the fire. PODESTA Jr. told me he reported that
22 powerlines were possibly down because the fire was in the area of the powerlines and
23 he didn't know of anything else in the area that could have caused the fire. He told me
24 prior to seeing the fire he did not hear or see anything in the direction of the fire. He told
25 me the gate to access the property was next to where he was working and nobody went
26 into the field. PODESTA Jr. told me he also called the responding CAL FIRE Battalion
27 Chief and told him the fire was near Charamuga Ranch Road. He then called his mom
28 who was home next door and told her about the fire. PODESTA Jr. told me he got on
29 the backhoe tractor at the barn and drove through the field to the fire. He told me when
30 he got there the fire was a couple of acres in size. He pointed to the stand of pine and

1 oak trees on the north side of the powerlines and told me the fire was creeping through
2 the trees. He told me the wind was pushing the main fire south and had already spread
3 to the neighbors house. PODESTA Jr. showed me where he tried to cut a fire line with
4 the tractor on the north and east side of the fire on the edge of the stand of trees.
5 PODESTA Jr. told me when he got to the fire there was nobody around and he was not
6 aware of anyone being on the property or of any ongoing trespass issues. PODESTA
7 Jr. told me the owners of the property don't live in the area but they had been up for
8 several days and were staying at 17501 Butte Mountain Road and were across the
9 street from the barn he was working on. I asked PODESTA Jr. if he or anyone else had
10 been burning the brush pile I observed along the edge of the fire north of the powerlines.
11 PODESTA Jr. told me, "Absolutely not". PODESTA Jr. told me he did not have any
12 other information as to what caused the fire and I concluded the interview.
13

14 I then interviewed Louie PODESTA Sr. separately at approximately 5:45 PM (See
15 Attachment #6). PODESTA Sr. told me the following in summary:

16
17 Louie PODESTA Sr. told me he was not home when the fire started and was at work
18 most of the day. PODESTA Sr. told me he has not been out in the field in a long time
19 other than at the barn next to Butte Mountain Road. He told me he didn't know of
20 anyone that would have been in the field and has not had any trespass issues. I asked
21 him about the partially burned pile of brush along the edge of the fire north of the
22 powerlines. He told me he had not burned the pile and believed it was left by the tree
23 trimmers when they trimmed around the powerlines. PODESTA Sr. told me tree crews
24 had cut down a couple of trees next to the powerlines during the winter or spring of this
25 year. PODESTA Sr. did not know the last time anyone came to inspect the lines or
26 trees. He told me he did not have any information as to what may have caused the fire
27 and I concluded the interview.
28

29 After completing the interviews, I completed taking digital photographs and taking
30 measurements within the GOA. The pine tree lying on the ground within the SOA was

1 labeled as Evidence Item #1.

2 At approximately 6:00 PM I contacted CAL FIRE Battalion Chief Chris VAN COR,
3 advised him of the incident and requested a CAL FIRE LIDAR team and an arborist.
4 VAN COR told me he would respond to my location and would work on ordering the
5 resources requested. VAN COR arrived at scene at approximately 9:00 PM and told me
6 the resources ordered would be out the next day. I maintained security of the origin
7 throughout the night.

8
9 On September 10, 2015, at approximately 7:20 AM, VAN COR returned to my location
10 and advised me the LIDAR team would be out this morning and the arborist would be
11 out in the afternoon. The CAL FIRE LIDAR team arrived at approximately 9:45 AM and
12 consisted of Garrett JACKSON and Jeff GAWRONSKI. VAN COR maintained security
13 of the origin with the LIDAR team at scene and I cleared the incident. I returned to the
14 incident at 1:10 PM and met with arborist Michael MAHONEY who had just arrived at
15 the incident. I asked MAHONEY to complete an Arborist Report for the tree (Evidence
16 Item #1) which was still in place and the surrounding stand of trees and vegetation.
17 MAHONEY identified the pine (Evidence Item #1) as a Gray Pine. MAHONEY finished
18 at approximately 4:10 PM and left the incident (See Attachment #7). The CAL FIRE
19 LIDAR team finished at 4:55 PM and left the incident (See Attachment #8). VAN COR
20 left the incident at 6:15 PM and I maintained security of the origin throughout the night.

21
22 On September 11, 2015, at approximately 7:15 AM, VAN COR returned to the incident.
23 I collected Evidence Item #1 at approximately 8:00 AM. The tree was cut into several
24 sections for transport and storage. VAN COR maintained security of the origin and I
25 submitted Evidence Item #1 into the CAL FIRE evidence locker at approximately 10:23
26 AM. I returned to the incident and a bucket truck was ordered so I could get a vantage
27 point to observe the powerline conductors and take photographs. A Trees Inc. bucket
28 truck arrived at the origin at approximately 12:25 PM and I met with General Foreman
29 [REDACTED] I went up in the bucket and observed discoloration on the northern
30 most conductor over the SOA and took photographs. I did not observe any discoloration

1 or damage to the other two conductors. Trees Inc. left the incident at 1:30 PM.
2 I contacted the incident base and asked them to contact the PG&E representative at the
3 base and have them contact me at the origin. At approximately 2:20 PM, PG&E
4 representatives [REDACTED] and [REDACTED] arrived at the origin. I advised them
5 of my observations to that point and that I would need to collect a section of the
6 powerline conductor as evidence. They began to make some phone calls and left the
7 origin at approximately 2:40 PM. At approximately 3:00 PM, PG&E representative [REDACTED]
8 [REDACTED] arrived at the origin. I showed him what conductor section was to be
9 collected as evidence and he gathered the information needed for a crew to come do the
10 work. At approximately 3:05 PM [REDACTED] and [REDACTED] returned to the origin. They told
11 me a PG&E investigator was enroute from San Francisco and they could not remove the
12 conductor until the investigator arrived. At approximately 3:22 PM the PG&E
13 representatives left the origin. At approximately 5:50 PM, PG&E representative [REDACTED]
14 [REDACTED] and ACRT Inc. representatives [REDACTED] and [REDACTED] arrived at the
15 origin and observed the GOA. [REDACTED] had a tablet with him and was looking at the
16 vegetation work done within that section of the powerlines. He told me two pine trees
17 adjacent to the tree I collected as evidence had been removed in January of 2015. It
18 appeared the stumps and downed logs I observed in the SOA were part of those trees.
19 He also told me Trees, Inc. does the trimming and removal work. [REDACTED] and
20 [REDACTED] left the origin at 6:15 PM. I left the origin at 6:25 PM and VAN COR
21 maintained security of the origin. At 8:24 PM I received an email from CAL FIRE Staff
22 Chief Shane CUNNINGHAM (See Attachment #10). The email was forwarded by
23 several people and the original email was from PG&E Helicopter Operations Department
24 Manager [REDACTED]. The email stated that a PG&E fire patrol aircraft was one of
25 the first to report the Butte Incident and included three photos taken from the aircraft.
26 The photographs were taken at approximately 2:24 PM on 9/9/15 and show the fire's
27 location and fire behavior. The information shown in the photos are consistent with my
28 GOA determination, confirming my location determination and fire behavior
29 observations. I returned to the origin at approximately 9:15 PM and VAN COR left the
30 origin area. I maintained security of the origin throughout the night.

1 On September 12, 2015, at approximately 8:15 AM, VAN COR arrived at the origin.
2 Neither of us heard from the PG&E investigator or were given an estimated arrival time.
3 At approximately 11:00 AM, PG&E representatives [REDACTED]
4 [REDACTED] and [REDACTED] arrived at the origin to observe the GOA.
5 [REDACTED] left the origin area at 11:35 AM. At 12:05 PM,
6 [REDACTED] told us PG&E investigator [REDACTED] was going to arrive on
7 September 13th at about 12:00 PM. We contacted the incident base and placed an
8 order for a security officer to our location to maintain security of the origin for the night.
9 Paladin Security officer A. FINCH arrived at the origin at 12:10 PM. I showed FINCH the
10 flagged off area surrounding the GOA and the overhead powerlines. He was given
11 direction not to allow any access into the flagged area or access to the overhead
12 powerlines. If anyone came to the origin he was to document their contact information
13 and they could only view the area from outside the flagged area as well as call me and
14 let me know who was there. At approximately 12:30 PM, [REDACTED] left the origin
15 area. After confirming FINCH's instructions were clear, VAN COR and I left the origin
16 area at approximately 12:35 PM. At approximately 1:41 PM I received a call from
17 FINCH. He told me PG&E representatives [REDACTED] and
18 [REDACTED] came to the origin area. FINCH told me they were not allowed
19 within the flagged area and they left. FINCH was relieved by Paladin Security officer
20 VENTURINO and at 7:00 PM VENTURINO noted on his log that two PG&E employees
21 were denied access to the site.

22
23 On September 13, 2015, at approximately 8:00 AM I arrived at the origin and met with
24 security officer A. FINCH. VAN COR arrived at 8:10 AM and we waited for the PG&E,
25 ACRT and Trees Inc. representatives and investigators. Representatives from ACRT
26 and Trees Inc. with investigator Alan CARLSON arrived at approximately 9:41 AM. I
27 showed CARLSON the location of the GOA and he began his documentation of the
28 area. They also had a LIDAR team with them and they began their documentation
29 outside the flagged area.

1 At approximately 11:20 AM, a woman came over to our location from the residence at
2 the end of Charamuga Ranch Road. I recognized her as someone I contacted when I
3 first arrived at the fire on September 9th. I contacted the woman and she identified
4 herself as Jaime AFFONSO. She said she walked over to see why so many vehicles
5 were over here since the fire was mostly burning in Calaveras. I told her I was
6 investigating the origin and cause of the fire and if I could ask her some questions. She
7 agreed (See Attachment #6) and AFFONSO told me the following in summary:

8
9 AFFONSO told me on September 9th she was home babysitting her two grandchildren.
10 She was in the kitchen and noticed it got darker outside, she looked out and saw smoke.
11 She went out and saw a fire burning between her house and the Podesta's. She told me
12 she called 911 to report the fire. AFFONSO told me prior to seeing the fire she did not
13 lose power or notice any power surges. She told me she was outside on her porch
14 about ten minutes before the fire and did not hear or see anyone in the area where the
15 fire occurred. She told me she did not hear any vehicles or equipment in the area prior
16 to the fire. AFFONSO told me she did not have any information as to what may have
17 caused the fire and I concluded the interview.

18
19 At approximately 11:30 AM, PG&E Area Supervisor [REDACTED] arrived with
20 investigator [REDACTED]. I showed [REDACTED] the GOA and he began his
21 documentation of the area. I remained at the origin during this time and provided
22 CARLSON and [REDACTED] with information when asked. At approximately 1:58 PM, the
23 PG&E, ACRT and Trees Inc. representatives stated they would like to collect the stump
24 from the tree (Evidence Item #1). We all agreed the stump would be collected as
25 evidence and retained by CAL FIRE. The stump was cut with a hand saw by Trees Inc.
26 representative [REDACTED]. After we completed taking photographs I collected the
27 tree stump as Evidence Item #2 at approximately 2:04 PM.

28
29 At approximately 3:40 PM, PG&E had a bucket truck put in place within the GOA so we
30 could photograph the powerline conductors prior to having any removed as evidence. I

1 went up in the bucket with PG&E representative [REDACTED]. I again observed and
2 photographed discoloration on the northern most conductor as I had when I went up in
3 the bucket on September 11th. I did not observe discoloration or damage to the center
4 or southern conductors. [REDACTED] and I observed the discoloration on the northern
5 conductor was visible over several feet along the conductor. He told me it appeared the
6 tree slid along the conductor before falling to the ground. After taking photos, I identified
7 a twenty foot section of the northern conductor, over the GOA, to be collected as
8 evidence. [REDACTED] and CARLSON also went up in the bucket to view and photograph
9 the conductors. They agreed the twenty foot section I identified was the only section of
10 conductor needed to be retained as evidence. After [REDACTED] and CARLSON completed
11 their documentation, PG&E representatives removed the twenty foot conductor section
12 at approximately 4:53 PM. At this time, CAL FIRE, PG&E, ACRT and Trees Inc.
13 representatives present were able to visually observe the conductor and take
14 photographs. At approximately 5:22 PM, I collected the section of conductor as
15 Evidence Item #3. At approximately 5:45 PM, all parties left the origin area and CAL
16 FIRE no longer maintained security of the origin area. Evidence Items #1 – 3 were
17 secured and retained within a CAL FIRE evidence locker.

18
19 On September 16, 2015, VAN COR and I took a helicopter flight over the origin area of
20 the fire. During the flight I took several photographs of the area. All the photographs I
21 had taken to this point in the incident were retained as Evidence Item #4.

22
23 On September 18, 2015, at approximately 11:00 AM, myself, as well as VAN COR and
24 Dave WISEMAN from CAL FIRE met with PG&E representatives [REDACTED] and [REDACTED]
25 [REDACTED] as well as CPUC representative R. YAMAMOTO in Jackson at their request.
26 We accompanied them to the origin area of the fire so R. YAMAMOTO could observe
27 the area. We all left the origin area at approximately 11:37 AM.
28 At approximately 12:30 PM I met with Jack and Diane CAUFIELD at 17501 Butte
29 Mountain Road and asked if I could interview them regarding the fire. They told me their
30 family owns the property at 17501 Butte Mountain Road which includes the barn and

1 property on the south side of the road. The CAUFIELD's told me the following in
2 summary (See Attachment #6):

3 D. CAUFIELD told me her family had gotten together at the ranch for Labor Day
4 weekend and when everyone left, she and Jack stayed a few extra days. She told me
5 on September 9th they were sitting in the shade and pointed to an area on the north side
6 of the house. Diane and Jack told me they didn't know there was a fire until Louie
7 PODESTA Jr. yelled to them from the barn. J. CAUFIELD told me by the time he saw
8 smoke it seemed like the fire engines were already driving by their house. J. CAUFIELD
9 told me he saw the smoke in the area where the powerlines go through the trees and
10 pointed it out to me from the house. Both Jack and Diane told me they didn't know
11 anyone who would have been in the field and did not hear or see anything in the area of
12 the fire. The CAUFIELD's told me they did not have any information as to what may
13 have caused the fire and I concluded the interview.
14

15 At approximately 2:50 PM I met with CAL FIRE Battalion Chief Frank PODESTA at the
16 CAL FIRE Columbia Air Attack Base. PODESTA was the initial air attack officer on the
17 fire and had taken photographs of the incident. I collected the photos taken by
18 PODESTA as Evidence Item #5.

19 On September 19, 2015, I received an email from PG&E representative [REDACTED]
20 The email provided me a link to download PG&E vegetation and maintenance inspection
21 records for the origin area of the fire which I had requested (See Attachment #11). The
22 documentation provided includes aerial images and LIDAR data of the origin area as
23 well as vegetation management work request reports for the origin area location. They
24 also included photos taken of the origin area after the fire. The documents state the
25 aerial images were obtained on 6/24 and 6/25 and the LIDAR data obtained on 7/19 and
26 7/20, the year was not specified. I observed the images provided with the LIDAR data
27 showing the tree height of the canopy adjacent to the powerline conductors. I observed
28 the images provided and was unable to identify individual trees within the canopy,
29 specifically the Gray Pine (Evidence Item #1) on the north side of the powerlines. If
30 PG&E and/or its sub-contractors were using these images and LIDAR data to conduct a

1 vegetation management or hazard inspection along the powerlines during the time frame
2 shown on the images, it does not appear an adequate inspection of individual trees
3 could be completed. For example, the Gray Pine (Evidence Item #1) cannot be clearly
4 identified in the images or LIDAR data provided. Therefore, it cannot be determined if
5 the tree is succumbing to the prolonged drought and showing signs of dying or disease
6 and/or if it's leaning towards the powerline conductors and needing to be trimmed or
7 removed in accordance with Public Resources Code 4293.

8 I also reviewed the vegetation management reports provided. The reports refer to the
9 powerlines as both the Electra 1101 and Martell 1102 circuits. PG&E representative
10 [REDACTED] told me they are the same circuit and include the powerlines identified in
11 the origin area. He told me the lines run from Electra to the Martell substation and the
12 vegetation management companies refer to it as the Martell 1102 because they work
13 from the substation out. The documents show an inspection of the origin area occurred
14 in October 2014 and identified the removal of the two Gray Pines adjacent to the Gray
15 Pine identified as Evidence Item #1 as well as the trimming of other trees. The
16 inspection was completed by PG&E sub-contractor ACRT. The report states the trees
17 were removed in January 2015 which is consistent with what ACRT representative
18 [REDACTED] told me. It shows PG&E sub-contractor Trees, Inc. as the company that
19 completed the work.

20 In the reports provided, there was no documentation regarding the interior trees that
21 would be exposed after the removal of the two Gray Pines in January. There is nothing
22 from the October 2014 ACRT inspection regarding the stand or the need to re-evaluate
23 the interior trees once the outer (edge) trees were removed. The reports show Trees,
24 Inc. removed the trees in January 2015. There is nothing documenting the condition of
25 the newly exposed interior trees or a request to have them evaluated after that date.
26 The documents provided also have the vegetation management inspection reports for
27 the clearance around the base of poles with specific equipment. Two of the poles
28 identified at 17501 Butte Mountain Road were pole #099650 and #099651. These poles
29 were at the west and east edges of the fire and the Gray Pine (Evidence Item #1) was
30 located along one of the spans running between these poles. The reports for each pole

1 show an inspection date of April 15, 2015. They also show work request numbers for
2 each pole with completion dates of April 15, 2015 and July 27, 2015. The reports
3 document work done at the base of the two poles but there is nothing documenting if the
4 powerline conductors or vegetation was inspected between the two poles.

5
6 Between September 22, 2015, through February 17, 2016, three evidence viewings for
7 the Butte Incident were held at the CAL FIRE Headquarters in Auburn. (See Attachment
8 #12) for the evidence viewing documentation.

9
10 On February 29, 2016, I received the Arborist Report from M. MAHONEY (See
11 Attachment #7). The following is a summary of the report:

12
13 The report identifies the Gray Pine (Evidence Item #1) as being encompassed by a
14 stand of Gray Pines. MAHONEY states in the report when trees are captured and
15 develop within a closed stand, they have narrow growth rings and poor stem taper.
16 When the stand is altered and captured interior trees are exposed to open spaces,
17 whether for right-of-way clearance or other reasons, they are prone to failure. He states
18 it's apparent that the act of cutting the larger pines that previously contained the stand
19 exposed the interior trees. The report provides a sketch of the Gray Pine (Evidence
20 Item #1) and certain trees in the stand and their proximity with the conductors south of
21 the stand along with a compass rose and indication of the path of the sun. MAHONEY
22 states it is well understood that trees have a physical orientation toward the path of the
23 sun and this can have significant consequences for maintaining safety. In his
24 observations of the Gray Pine (Evidence Item #1), MAHONEY states the burn marks on
25 the tree in the second increment beneath the tip of growth are characteristic of contact
26 with energized electrical equipment. He describes the stem at this location as severely
27 charred (top and bottom) with two lateral limbs whose tips caught fire, were burned-off,
28 and fell onto the easement below. He states there is less charring on the two lateral
29 branches indicating they rested on the conductor very briefly compared to the larger
30 main stem.

1 MAHONEY states there are significant growth and development implications for the
2 captured tree (Evidence Item #1) released in the 2015 growing season. The subject
3 tree (Evidence Item #1) was already tall enough to reach the conductor and when it was
4 allowed greater solar exposure tip extension was fortified. MAHONEY also made
5 several arboricultural hypotheses in his report; the following are some of those:

- 6 • The unusual appearance of the subject tree was immediately apparent
- 7 • Burn marks on the tree top corresponded with likely tree/line contact.
- 8 • Site inspection and photographic evidence demonstrate the tree lacked reaction
9 wood and was unable to stand on its own.
- 10 • Recent tree/line maintenance activities caused the tree to fail.
- 11 • Trees that are captured within the confines of a dense stand do not develop
12 reaction wood, have poor trunk taper, and are inherently unstable.
- 13 • Stable trees were removed exposing the weak interior trees to the elements.
- 14 • Visual inspection of burns & contact points and the series of nodes and inter-
15 nodes that correspond to annual growth increments demonstrate that the tree
16 was sufficiently tall to reach the conductor in the 2014 growing season, before
17 adjacent larger trees were removed.
- 18 • Stable trees were removed from the stand edge and they exposed weak interior
19 trees to physical properties of the natural elements.
- 20 • Prevailing winds are to the south in the Jackson CA vicinity predisposing the
21 unstable Gray pine to fall toward the conductors.
- 22 • Secondary growth developing in the subject tree's canopy and other recently
23 exposed tree canopies would be most prolific on their southern side – facing the
24 energized conductors.
- 25 • Gravitational leverage resulting from new foliage and tip growth causes the tree
26 to fall to the south.

27 This concludes the summary of the Arborist Report.
28
29
30

Opinions/Conclusions:

I believe based on my training, education, experience, observations, evidence, 911 audio, reports and witness statements the wildland fire (Butte Incident) was caused when a Gray Pine (Evidence Item #1) contacted a PG&E powerline conductor which ignited portions of the tree. Burning embers from this contact with the conductor dropped into the fine dead fuels below the conductor, igniting the wildland fire which burned onto numerous properties not owned or controlled by PG&E in violation of PRC 4421. While conducting the origin and cause investigation I was able to exclude all other standard wildland fire causes.

During the investigation I determined PG&E and/or its sub-contractors ACRT and Trees, Inc. conducted powerline vegetation management inspections and maintenance in 2014-2015 within the area of origin. They identified (October 2014) and removed (January 2015) two Gray Pines on the outer edge of the pine stand on the north side of the powerline conductor identified as being within the GOA of the fire. The removal of these two pines exposed the interior trees, including the Gray Pine (Evidence Item #1) that were previously captured and developed within the closed stand provided by those removed pines. These now exposed trees were left open to the south, towards the path of the sun and the powerlines. It is known, when a stand is altered and captured interior trees are exposed to open spaces, they are prone to failure. PG&E and/or its sub-contractors ACRT and Trees, Inc. failed to identify this during their 2014 inspection when the pine trees were identified for removal, or in January 2015 when the trees were removed, or during any subsequent inspections/maintenance conducted on that section of powerlines and poles. Failing to identify the potential hazard of leaving weaker, inherently unstable trees on the edge of the stand, without conducting maintenance on them, ultimately led to the failure of the Gray Pine (Evidence Item #1) which contacted the powerline conductor operated by PG&E and ignited the uncontrolled wildland fire.

Gianni Muschetto 4/25/16

Gianni Muschetto, #15

Battalion Chief, CAL FIRE

10 - ATTACHMENTS:

1. FC-34 Interagency Report of Incident and Dispatch Action
2. Butte Incident Damage Inspection Summary
3. Incident Sketch
4. Weather Data
5. Photographs
6. LE71's – Witness Interviews
7. Arborist Report
8. LIDAR Mapping Exhibit
9. LE75e – Evidence Log
10. Email and Photographs sent by PG&E Helicopter Operations
Department Manager [REDACTED]
11. PG&E Vegetation and Maintenance Inspection Records
12. Evidence Viewing Documents

Exhibit 75

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection



CONTACT: Daniel Berlant
Information Officer
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[@CALFIRE_PIO](https://twitter.com/CALFIRE_PIO)

RELEASE
DATE: April 28, 2016

CAL FIRE investigators determine cause of destructive Butte Fire

Sacramento – After a thorough investigation, CAL FIRE has determined that the 2015 Butte Fire was sparked by a tree that came into contact with a Pacific Gas & Electric Company powerline.

TWEET THIS: [.@CAL_FIRE investigators determine power lines were cause of destructive #ButteFire.](https://twitter.com/CAL_FIRE/status/725123456789012345)

Investigators were dispatched as part of the initial response to the Butte Fire and immediately began working to determine the origin and cause of the fire. The ensuing investigation uncovered evidence that contact between a tree and a PG&E powerline near Butte Mountain Road in Amador County sparked the fire on September 9, 2015.

The fire burned for 22 days and spread into Calaveras County before the blaze was fully contained. The fire became the 7th most destructive wildfire in California's history. Two civilians lost their lives and more than 900 structures were destroyed by the fire. At its peak, nearly 5,000 firefighters battled the blaze. Resources included 519 fire engines, 18 helicopters, 8 airtankers, 92 hand crews, 115 bulldozers, and 60 water tenders.

Under California's Health and Safety Code, CAL FIRE has the ability to seek recovery of costs incurred battling wildfires that are determined to be sparked due to negligence or violations of the law. CAL FIRE will seek to recover firefighting costs in excess of \$90 million from PG&E.

Everyone must take steps to prevent sparking wildfires. One Less Spark truly means, One Less Wildfire. Learn more at ReadyForWildfire.org.

CAL FIRE has submitted the Butte Fire Investigation Report to the Amador and Calaveras County District Attorneys for their review. A copy of the final report can be found here: http://calfire.ca.gov/fire_protection/fire_protection_firereports.

###

Media Notes

[Click here to download high resolution video](#)

Important links:

www.fire.ca.gov

www.ReadyForWildfire.org

Exhibit 76

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection



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RELEASE
DATE: May 25, 2018

CAL FIRE Investigators Determine Cause of Four Wildfires in Butte and Nevada Counties

Sacramento – After extensive and thorough investigations, CAL FIRE investigators have determined that four Northern California wildfires in last year's October Fire Siege were caused by trees coming into contact with power lines. The four fires, located in Butte and Nevada counties, are the first fire investigations from last October to be completed.

CAL FIRE investigators were dispatched to the fires last year and immediately began working to determine their origin and cause. The Department continues to investigate the remaining 2017 fires, both in October and December, and will release additional reports as they are completed.

The October 2017 Fire Siege involved more than 170 fires and charred more than 245,000 acres in Northern California. More than 11,000 firefighters from 17 states helped battle the blazes.

Below is a summary of the four completed investigations:

- The La Porte Fire, in Butte County, started in the early morning hours of Oct. 9 and burned a total of 8,417 acres, destroying 74 structures. There were no injuries to civilians or firefighters. CAL FIRE has determined the fire was caused by tree branches falling onto PG&E power lines. CAL FIRE investigators determined there were no violations of state law related to the cause of this fire.
- The McCourtney Fire, in Nevada County, started the evening of Oct. 8 and burned a total of 76 acres, destroying 13 structures. There were no injuries to civilians or firefighters. CAL FIRE has determined the fire was caused by a tree falling onto PG&E power lines. The investigation found evidence that PG&E allegedly failed to remove a tree from the proximity of a power line, in violation of the state Public Resources Code section 4293.
- The Lobo Fire, in Nevada County, started the evening of Oct. 8 and burned a total of 821 acres, destroying 47 structures. There were no injuries to civilians or firefighters. CAL FIRE has determined the fire was caused by a tree contacting PG&E power lines. The investigation found evidence that Public Resources Code section 4293, which requires adequate clearance between trees and power lines, was allegedly violated.

- The Honey Fire, in Butte County, started in the early morning hours of Oct. 9 and burned a total of 76 acres. There were no injuries to civilians or firefighters and no structures were destroyed. CAL FIRE has determined the fire was caused by an Oak branch contacting PG&E power lines. The investigation found evidence that Public Resources Code 4293, which requires adequate clearance between trees and power lines, was allegedly violated.

The McCourtney, Lobo, Honey investigations have been referred to the appropriate county District Attorney's offices for review.

Californians are encouraged to remain vigilant and prepared for wildfire. For more information, visit www.readyforwildfire.org or www.fire.ca.gov

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Exhibit 77

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection



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RELEASE
DATE: June 8, 2018

CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake, and Napa Counties

Sacramento – After extensive and thorough investigations, CAL FIRE investigators have determined that 12 Northern California wildfires in the October 2017 Fire Siege were caused by electric power and distribution lines, conductors and the failure of power poles.

The October 2017 Fire Siege involved more than 170 fires and burned at least 245,000 acres in Northern California. About 11,000 firefighters from 17 states and Australia helped battle the blazes.

CAL FIRE investigators were dispatched to the fires last year and immediately began working to determine their origin and cause. CAL FIRE investigators continue to investigate the remaining 2017 fires, both in October and December, and will release additional reports as they are completed. The cause of four Northern California fires were released on May 25.

Below is a summary of the findings from the 12 completed investigations:

The **Redwood Fire**, in Mendocino County, started the evening of Oct. 8 and burned a total of 36,523 acres, destroying 543 structures. There were nine civilian fatalities and no injuries to firefighters. CAL FIRE has determined the fire started in two locations and was caused by tree or parts of trees falling onto PG&E power lines.

The **Sulphur Fire**, in Lake County, started the evening of Oct. 8 and burned a total of 2,207 acres, destroying 162 structures. There were no injuries. CAL FIRE investigators determined the fire was caused by the failure of a PG&E owned power pole, resulting in the power lines and equipment coming in contact with the ground.

The **Cherokee Fire**, in Butte County, started the evening of Oct. 8 and burned a total of 8,417 acres, destroying 6 structures. There were no injuries. CAL FIRE investigators have determined the cause of the fire was a result of tree limbs coming into contact with PG&E power lines.

The **37 Fire**, in Sonoma County, started the evening of Oct. 9 and burned a total of 1,660 acres, destroying 3 structures. There were no injuries. CAL FIRE investigators have determined the cause of the fire was electrical and was associated with the PG&E distribution lines in the area.

The **Blue Fire**, in Humboldt County, started the afternoon of Oct. 8 and burned a total of 20 acres. There were no injuries. CAL FIRE investigators have determined a PG&E power line conductor separated from a connector, causing the conductor to fall to the ground, starting the fire.

The Norrbom, Adobe, Partrick, Pythian and Nuns fires were part of a series of fires that merged in Sonoma and Napa counties. These fires started in the late-night hours of Oct. 8 and burned a combined total of 56,556 acres, destroying 1355 structures. There were three civilian fatalities.

CAL FIRE investigators determined the **Norrbom Fire** was caused by a tree falling and coming in contact with PG&E power lines.

CAL FIRE investigators determined the **Adobe Fire** was caused by a eucalyptus tree falling into a PG&E powerline.

CAL FIRE investigators determined the **Partrick Fire** was caused by an oak tree falling into PG&E powerlines.

CAL FIRE investigators determined the **Pythian Fire** was caused by a downed powerline after PG&E attempted to reenergize the line

CAL FIRE investigators determined the **Nuns Fire** was caused by a broken top of a tree coming in contact with a power line.

The **Pocket Fire**, in Sonoma County, started the early morning hours of Oct. 9 and burned a total of 17,357 acres, destroying 6 structures. There were no injuries. CAL FIRE has determined the fire was caused by the top of an oak tree breaking and coming into contact with PG&E power lines.

The **Atlas Fire**, in Napa County, started the evening of Oct. 8 and burned a total of 51,624 acres, destroying 783 structures. There were six civilian fatalities. CAL FIRE investigators determined the fire started in two locations. At one location, it was determined a large limb broke from a tree and came into contact with a PG&E power line. At the second location, investigators determined a tree fell into the same line.

CAL FIRE's investigations have been referred to the appropriate county District Attorney's offices for review in eight of the 12 fires – Sulphur, Blue, Norrbom, Partrick, Pythian, Adobe, Pocket and Atlas – due to evidence of alleged violations of state law.

Californians are encouraged to remain vigilant and prepared for wildfire. For more information on how to be prepared, visit www.readyforwildfire.org or www.fire.ca.gov

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Exhibit 78

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection



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RELEASE
DATE: October 9, 2018

CAL FIRE Investigators Determine the Cause of the Cascade Fire

Sacramento – After a thorough investigation, CAL FIRE has determined the Cascade Fire which occurred during the October 2017 Fire Siege was started by sagging power lines coming into contact during heavy winds.

No violations of the Public Resources Code were found by CAL FIRE.

The Cascade Fire in Yuba County, started on the evening of October 8 and burned a total of 9,989 acres, destroying 264 structures and resulted in four civilian fatalities and one firefighter injury.

A high wind event in conjunction with the power line sag on two conductors caused the lines to come into contact, which created an electrical arc. The electrical arc deposited hot burning or molten material onto the ground in a receptive fuel bed causing the fire. The common term for this situation is called “line slap” and the power line in question was owned by the Pacific Gas and Electric Company.

The investigative report has been forwarded to the Yuba County District Attorney.

In total, the October 2017 Fire Siege involved more than 170 fires and burned at least 245,000 acres in Northern California. Approximately 11,000 firefighters from 17 states and Australia helped battle the blazes.

CAL FIRE investigators were dispatched to the fires last year and immediately began working to determine their origin and cause. CAL FIRE investigators continue to investigate the Tubbs Fire and will release the report once it is completed.

Californians are encouraged to remain vigilant and prepared for wildfire. For more information on how to be prepared, visit www.readyforwildfire.org or www.fire.ca.gov.

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Exhibit 79

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection



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RELEASE
DATE: January 24, 2019

CAL FIRE Investigators Determine the Cause of the Tubbs Fire

Sacramento – After an extensive and thorough investigation, CAL FIRE has determined the Tubbs Fire, which occurred during the October 2017 Fire Siege, was caused by a private electrical system adjacent to a residential structure. CAL FIRE investigators did not identify any violations of state law, Public Resources Code, related to the cause of this fire.

The Tubbs Fire in Sonoma County started on the evening of October 8th, 2017 and burned a total of 36,807 acres. Destroying 5,636 structures and resulting in 22 civilian fatalities and one firefighter injury.

In total, the October 2017 Fire Siege involved more than 170 fires and burned at least 245,000 acres in Northern California. Approximately 11,000 firefighters from 17 states and Australia helped battle the blazes.

CAL FIRE investigators are dispatched with the initial attack resources to the wildfires in CAL FIRE jurisdiction and immediately begin working to determine their origin and cause.

Californians must remain vigilant and take on the responsibility to be prepared for wildfire at any time throughout the year. For more information on how to be prepared, visit www.readyforwildfire.org or www.fire.ca.gov.

#

Media Note: Link to the redacted Tubbs Investigative report
http://calfire.ca.gov/fire_protection/fire_protection_2017_siege

Exhibit 80

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection



CONTACT: Michael Mohler
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(619) 933-2357

RELEASE
DATE: May 15, 2019

CAL FIRE Investigators Determine Cause of the Camp Fire

Sacramento – The Camp Fire in Butte County, started the morning of November 8, 2018, and burned a total of 153,336 acres, destroying 18,804 structures and resulting in 85 civilian fatalities and several firefighter injuries. The Camp Fire is the deadliest and most destructive fire in California history.

CAL FIRE investigators were immediately dispatched to the Camp Fire and began working to determine the origin and cause of the fire. After a very meticulous and thorough investigation, CAL FIRE has determined that the Camp Fire was caused by electrical transmission lines owned and operated by Pacific Gas and Electricity (PG&E) located in the Pulga area.

The fire started in the early morning hours near the community of Pulga in Butte County. The tinder dry vegetation and Red Flag conditions consisting of strong winds, low humidity and warm temperatures promoted this fire and caused extreme rates of spread, rapidly burning into Pulga to the east and west into Concow, Paradise, Magalia and the outskirts of east Chico.

The investigation identified a second ignition sight near the intersection of Concow Rd. and Rim Rd. The cause of the second fire was determined to be vegetation into electrical distribution lines owned and operated by PG&E. This fire was consumed by the original fire which started earlier near Pulga.

During 2018 there were more than 7,571 wildfires that burned over 1.8 million acres within the state of California.

The Camp Fire investigative report has been forwarded to the Butte County District Attorney Mike Ramsey. For any questions related to the Camp Fire investigation, contact Mike Ramsey at (530) 538-7411 or at mramsey@buttecounty.net or mnoel@buttecounty.net.

Californians must remain vigilant and be prepared for wildfire. For more information on how to be prepared, visit www.readyforwildfire.org or www.fire.ca.gov. CAL FIRE also offers a free Ready for Wildfire app for iPhones and Android phones.

###

Exhibit 81

2016

Wildfire Activity Statistics



**Ken Pimlott
Director**

California Department of Forestry and Fire Protection

**John Laird
Secretary
Natural Resources Agency**

**Edmund G. Brown Jr.
Governor
State of California**

2016 Wildfire Activity Statistics

California Department of Forestry and Fire Protection
Office of the State Fire Marshal

Administration/Executive Office

Mailing Address: P.O. Box 944246 Sacramento, CA 94244-2460
Location Address: 1131 "S" Street Sacramento, CA 95811
Phone: (916) 324-8922

California All Incident Reporting System (CAIRS)

Phone: (916) 445-1858

Acknowledgements

We wish to acknowledge and thank all who supplied data, resources, professional expertise, and assisted in the review of the reports.

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FOREWORD

WILDFIRE ACTIVITY STATISTICS

The California Department of Forestry and Fire Protection (CAL FIRE), under the direction of the State Board of Forestry and Fire Protection, provides the annual Wildfire Activity Statistics report. Although it contains other information, this report is primarily a statistical record of wildfire incidents responded to by CAL FIRE personnel and resources, performing the State/CAL FIRE mission, using State funding within CAL FIRE Direct Protection Area (DPA).

The existing overall fire protection system involving CAL FIRE and California as a whole is rather complex. A number of technical terms are utilized and the use of fire statistics typically presupposes some understanding of the overall framework. A description of this framework can be found at (<http://www.fire.ca.gov/about/about.php>); and in the Glossary of terms at the end of this document.

The first Forest Fire Summary (RED BOOK) was published in 1943, and has continued to this date. Prior to 1989, data and statistics were tabulated manually; today, statistics are derived from an automated database. CAL FIRE began electronically entering incident data into the Emergency Activity Reporting System (EARS) on July 1, 1989. Starting at the end of 2007, CAL FIRE began reporting incidents using a web-based subscription service called California All Incident Reporting System (CAIRS). This data is imported into the CAIRS database by CAL FIRE staff and the data is uploaded quarterly to the National Database maintained by the United States Fire Administration (USFA). **Due to the changes in data collection, methods, and systems over the years, information may not always be comparable and data may be of differing accuracy or completeness.**

Throughout this report, the statistics are displayed by **who** provides the wildfire protection. Forces include those from CAL FIRE employees working under a local government contract, CAL FIRE personnel and resources using State funding, Contract County, and federal firefighters. The second part of the statistical reporting is **where** the protection is provided. Areas are categorized as State Responsibility Area (SRA) or DPA.

SRA is State and privately-owned forest, watershed, and rangeland for which the primary financial responsibility of preventing and suppressing wildfires rests with the State (Map 1).

The term "Direct Protection Area" is applied to indicate when a particular fire protection organization has the primary responsibility for responding to an uncontrolled fire and for directing the suppression activity. Thus, in addition to lands in SRA, CAL FIRE may have "direct protection" responsibility on lands in federal jurisdiction. At the same time, federal agencies, such as the U.S. Forest Service, may have "direct protection" responsibility for lands in SRA. The lands in SRA and federal areas for which CAL FIRE has "direct protection" responsibility for fire protection responses are depicted on Map 2.

The State contracts with six counties to provide protection of SRA within their boundaries. These counties [Kern, Los Angeles, Marin, Orange, Santa Barbara, and Ventura] are referred to as Contract Counties.

CAL FIRE provides fire protection services to many California citizens through the administration of 146 cooperative fire protection agreements in 35 of the State's 58 counties, 25 cities and 65 districts. Wildfire statistics associated with incidents where local government reimburses CAL FIRE for services are displayed in Table 1.

This report also includes a statewide summary of California wildfires and a listing of wildfires over three hundred acres for all wildfire agencies (Table 5). The statistical information in this report is gathered from data in the previously defined CAIRS and Incident Status Summaries (ICS-209) on the National Fire and Aviation Management (FAMWEB) website <http://fam.nwcg.gov/fam-web/>.

Additional Wildfire Activity Statistics for previous years can be found at the following website:

http://www.fire.ca.gov/fire_protection/fire_protection_fire_info_redbooks.php

2016 STATEWIDE FIRE SUMMARY

During 2016, local, state, federal, and tribal firefighting agencies responded to 6,954 wildland fires that burned 669,534 acres across the entire state of California. CAL FIRE, through state funded and its local government contracts, reported 5,322 wildfire incidents that burned 250,194 acres.

In addition to the numbers of above, CAL FIRE responds to upwards of 1,000 additional incidents that are initially dispatched as wildfires, but later turn out to be false alarms or other types of fires.

For all firefighting agencies throughout California, the 5-year average for ignitions dropped slightly by 2%, while acres burned increased by 13%. CAL FIRE's 5-year average, including state funded and local government contracts, indicate that reported ignitions decreased less than 1%, yet acreage burned increased by almost 20%. These numbers support the growing intensity and severity of wildfire activity across the state.

Table 1. Protection Areas by Wildfire Agency—Fires and Acres

| Direct Protection Area | Fires | Acres Burned |
|---|--------------|----------------|
| CAL FIRE – (State Responsibility) | 2,816 | 244,556 |
| CAL FIRE – (Local Government Contracts) | 2,506 | 5,638 |
| Contract Counties | 417 | 6,440 |
| United States Forest Service | 889 | 356,951 |
| Bureau of Land Management | 109 | 30,285 |
| National Park Service | 79 | 1,152 |
| Bureau of Indian Affairs | 126 | 6,116 |
| United States Fish and Wildlife Service | 12 | 406 |
| Military | 5 | 17,990 |
| 2016 Total | 6,954 | 669,534 |
| 5 Year Average (2012-2016) All Agencies | 7,681 | 721,367 |
| 5 Year Average CAL FIRE (2012-2016) Includes Local Govt. Contracts | 5,453 | 195,243 |

Federal agencies provide their fire statistics as a courtesy to CAL FIRE.

Table 2. The Top Five Fires for 2016 by Acreage Burned

| Fire Name | County | Start Date | Acres Burned | Fire Cause | Structures Destroyed |
|------------------|-----------------|------------|--------------|--------------|----------------------|
| Soberanes | Monterey | 07/22/16 | 132,127 | Campfire | 68 |
| Erskine | Kern | 06/23/16 | 48,019 | Undetermined | 286 |
| Chimney | San Luis Obispo | 08/13/16 | 46,235 | Vehicle | 70 |
| Sand | Los Angeles | 07/22/16 | 41,383 | Undetermined | 116 |
| Bluecut | San Bernardino | 08/16/16 | 36,274 | Undetermined | 321 |

Source: Redbook, Table 6, Large Fires 300 Acres and Greater - Other Agencies Direct Protection Areas.

Map 1. State Responsibility Area (SRA)

State Responsibility Area (SRA)

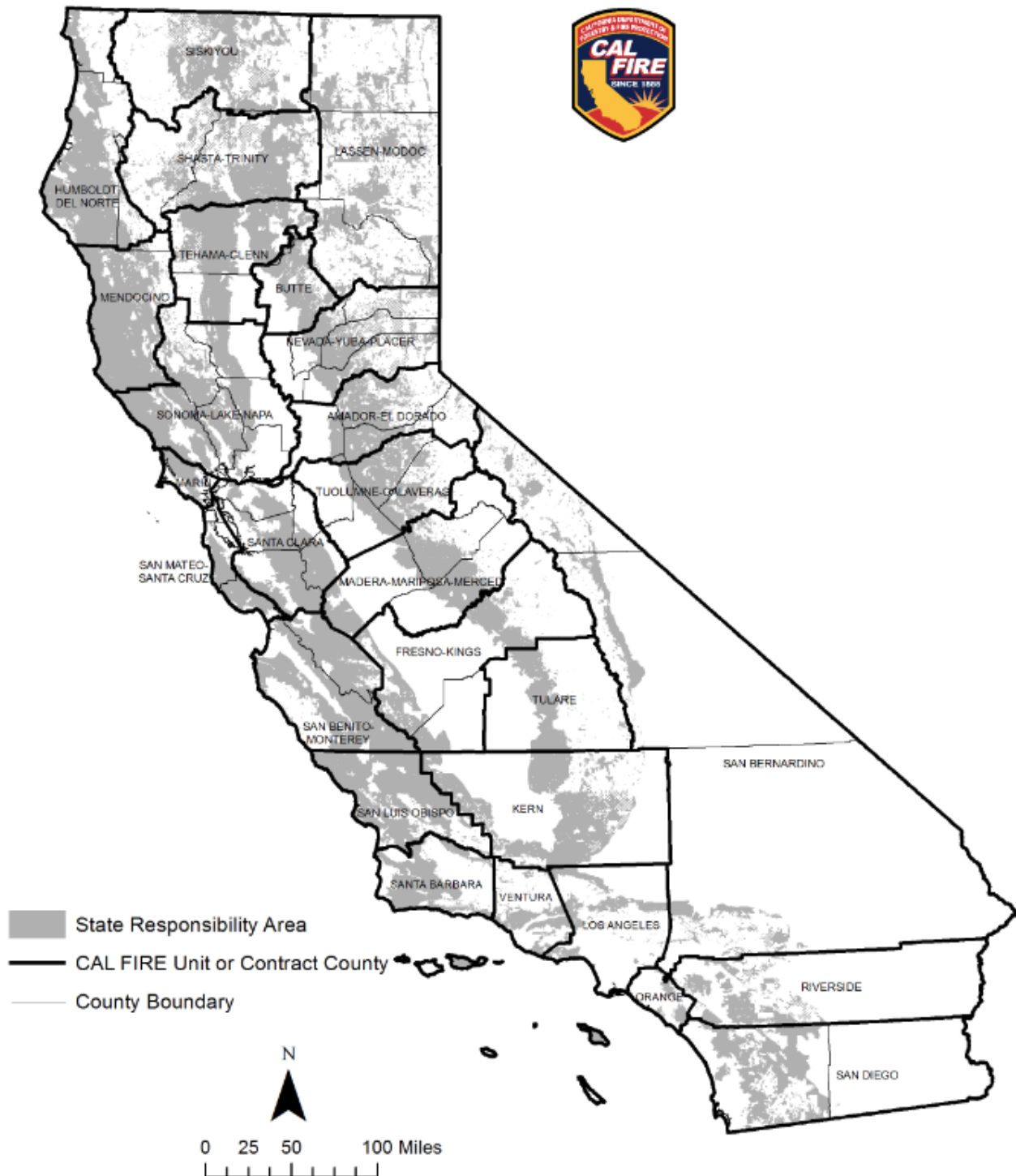


Table 3. State Responsibility Area, Acres Protected by State and Other Agencies (2016)*

| COUNTY | CAL FIRE | USFS | BLM | NPS | CC | Other FED | TOTAL |
|-----------------|-----------|---------|---------|-----|-----------|-----------|-----------|
| Alameda | 246,200 | 0 | 0 | 0 | 0 | 0 | 246,200 |
| Alpine | 0 | 34,200 | 400 | 0 | 0 | 0 | 34,600 |
| Amador | 279,700 | 11,800 | 0 | 0 | 0 | 0 | 291,500 |
| Butte | 501,300 | 35,900 | 0 | 0 | 0 | 0 | 537,200 |
| Calaveras | 524,400 | 2,300 | 0 | 0 | 0 | 0 | 526,700 |
| Colusa | 240,700 | 5,000 | 0 | 0 | 0 | 0 | 245,700 |
| Contra Costa | 193,400 | 0 | 0 | 0 | 0 | 0 | 193,400 |
| Del Norte | 172,400 | 18,500 | 0 | 800 | 0 | 0 | 191,700 |
| El Dorado | 405,000 | 147,100 | 0 | 0 | 0 | 0 | 552,100 |
| Fresno | 776,300 | 29,100 | 0 | 0 | 0 | 0 | 805,400 |
| Glenn | 290,100 | 7,400 | 0 | 0 | 0 | 0 | 297,500 |
| Humboldt | 1,542,100 | 69,400 | 0 | 300 | 0 | 0 | 1,611,800 |
| Imperial | 1,800 | 0 | 0 | 0 | 0 | 0 | 1,800 |
| Inyo | 307,100 | 11,600 | 16,900 | 0 | 0 | 0 | 335,600 |
| Kern | 0 | 29,500 | 152,100 | 0 | 1,643,400 | 0 | 1,825,000 |
| Kings | 149,000 | 0 | 0 | 0 | 0 | 0 | 149,000 |
| Lake | 354,900 | 40,000 | 0 | 0 | 0 | 0 | 394,900 |
| Lassen | 584,500 | 80,900 | 386,200 | 0 | 0 | 0 | 1,051,600 |
| Los Angeles | 0 | 28,400 | 0 | 0 | 470,400 | 0 | 498,800 |
| Madera | 368,100 | 9,700 | 0 | 0 | 0 | 0 | 377,800 |
| Marin | 0 | 0 | 0 | 0 | 199,600 | 0 | 199,600 |
| Mariposa | 426,900 | 16,200 | 0 | 700 | 0 | 0 | 443,800 |
| Mendocino | 1,838,500 | 24,400 | 0 | 0 | 0 | 0 | 1,862,900 |
| Merced | 393,900 | 0 | 0 | 0 | 0 | 0 | 393,900 |
| Modoc | 371,100 | 187,600 | 73,100 | 0 | 0 | 0 | 631,800 |
| Mono | 2,500 | 95,400 | 160,300 | 0 | 0 | 0 | 258,200 |
| Monterey | 1,250,200 | 38,000 | 0 | 0 | 0 | 0 | 1,288,200 |
| Napa | 360,400 | 0 | 0 | 0 | 0 | 0 | 360,400 |
| Nevada | 299,600 | 90,100 | 0 | 0 | 0 | 0 | 389,700 |
| Orange | 0 | 2,100 | 0 | 0 | 104,100 | 0 | 106,200 |
| Placer | 277,200 | 91,500 | 0 | 0 | 0 | 0 | 368,700 |
| Plumas | 96,600 | 344,000 | 100 | 0 | 0 | 0 | 440,700 |
| Riverside | 556,700 | 35,000 | 41,200 | 0 | 2,600 | 0 | 635,500 |
| Sacramento | 113,600 | 0 | 0 | 0 | 0 | 0 | 113,600 |
| San Benito | 729,000 | 0 | 0 | 0 | 0 | 0 | 729,000 |
| San Bernardino | 313,600 | 38,800 | 0 | 0 | 0 | 0 | 352,400 |
| San Diego | 1,090,300 | 80,400 | 0 | 0 | 0 | 0 | 1,170,700 |
| San Francisco | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| San Joaquin | 150,200 | 0 | 0 | 0 | 0 | 0 | 150,200 |
| San Luis Obispo | 1,406,400 | 40,700 | 81,600 | 0 | 1,700 | 0 | 1,530,400 |

Table 3. (continued) State Responsibility Area, Acres Protected by State and Other Agencies (2016) *

| COUNTY | CAL FIRE | USFS | BLM | NPS | CC | Other FED | TOTAL |
|---------------|-------------------|------------------|----------------|---------------|------------------|--------------|-------------------|
| San Mateo | 176,100 | 0 | 0 | 0 | 0 | 0 | 176,100 |
| Santa Barbara | 0 | 65,800 | 0 | 55,200 | 669,100 | 1,200 | 791,300 |
| Santa Clara | 554,200 | 0 | 0 | 0 | 0 | 0 | 554,200 |
| Santa Cruz | 228,900 | 0 | 0 | 0 | 0 | 0 | 228,900 |
| Shasta | 1,142,500 | 219,000 | 0 | 2,400 | 0 | 0 | 1,363,900 |
| Sierra | 0 | 159,300 | 2,300 | 0 | 0 | 0 | 161,600 |
| Siskiyou | 1,012,100 | 356,700 | 0 | 0 | 0 | 0 | 1,368,800 |
| Solano | 86,900 | 0 | 0 | 0 | 0 | 0 | 86,900 |
| Sonoma | 793,900 | 0 | 0 | 0 | 0 | 0 | 793,900 |
| Stanislaus | 448,000 | 0 | 0 | 0 | 0 | 0 | 448,000 |
| Sutter | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tehama | 1,144,900 | 136,800 | 0 | 0 | 0 | 0 | 1,281,700 |
| Trinity | 258,900 | 236,400 | 0 | 400 | 0 | 0 | 495,700 |
| Tulare | 574,100 | 11,700 | 11,200 | 2,500 | 0 | 300 | 599,800 |
| Tuolumne | 299,000 | 59,300 | 0 | 1,500 | 0 | 0 | 359,800 |
| Ventura | 0 | 48,300 | 0 | 0 | 305,000 | 0 | 353,300 |
| Yolo | 180,100 | 0 | 0 | 0 | 0 | 0 | 180,100 |
| Yuba | 184,900 | 30,000 | 0 | 0 | 0 | 0 | 214,900 |
| TOTAL | 23,698,200 | 2,968,300 | 925,400 | 63,800 | 3,395,900 | 1,500 | 31,053,100 |

CAL FIRE - California Department of Forestry and Fire Protection

USFS - United States Forest Service

BLM - Bureau of Land Management

NPS - National Park Service

CC - Contract County

Other FED - Other Federal Fire Protection Agency

*Acres rounded to nearest hundred

Source: SRA16_2, Direct Protection Areas 16_3

Map and data prepared by CAL FIRE Fire and Resource Assessment Program (FRAP)

Map 2. CAL FIRE - Direct Protection Area (DPA)

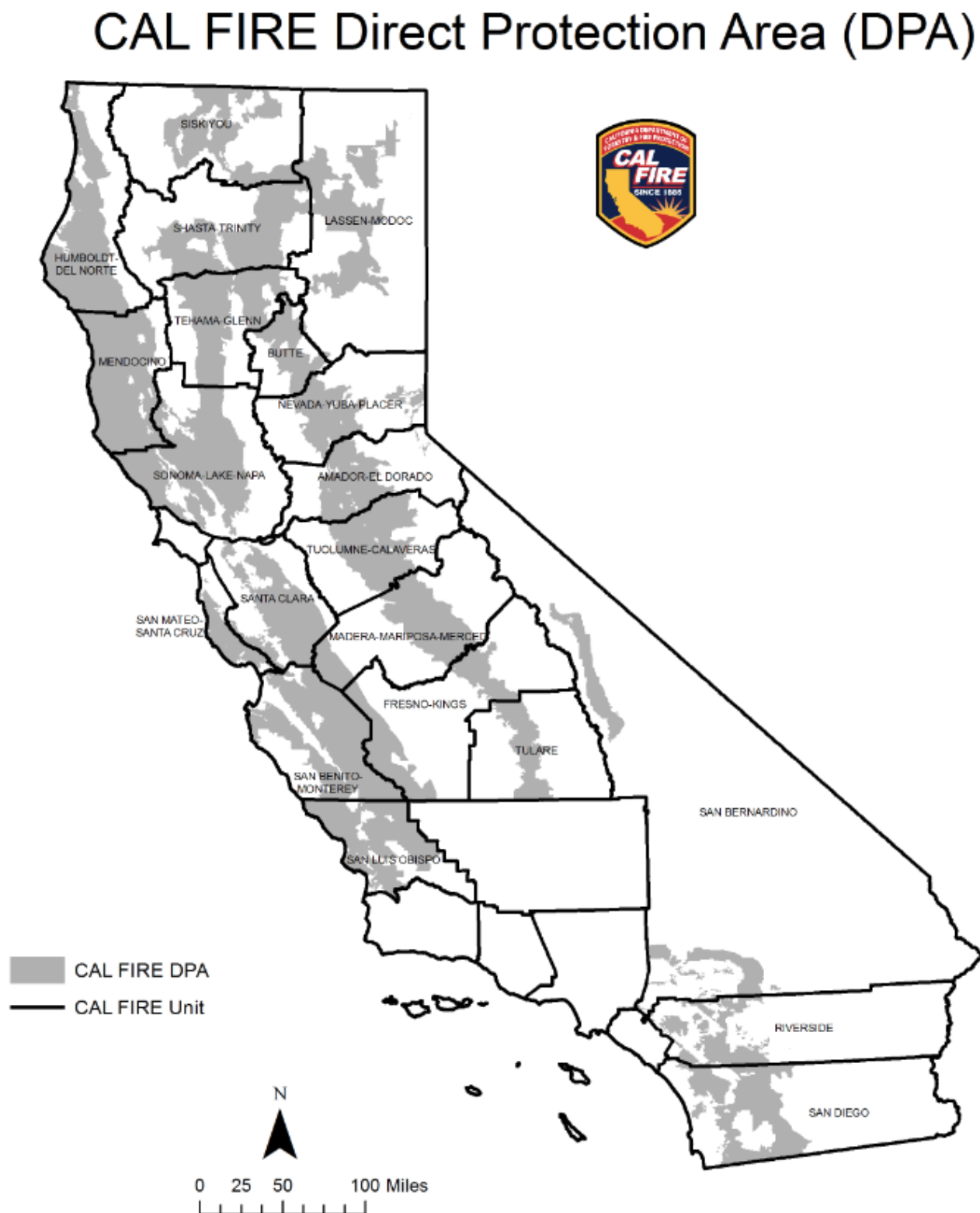


Table 4. CAL FIRE Direct Protection Area, Acres by Jurisdiction (2016) *

| COUNTY | STATE | FEDERAL | CDFLWC | TOTAL ACRES |
|-----------------|-----------|---------|--------|-------------|
| Alameda | 245,900 | 200 | 0 | 246,100 |
| Alpine | 0 | 0 | 0 | 0 |
| Amador | 279,600 | 13,800 | 0 | 293,400 |
| Butte | 501,200 | 59,900 | 900 | 562,000 |
| Calaveras | 524,400 | 98,800 | 0 | 623,200 |
| Colusa | 240,700 | 45,100 | 0 | 285,800 |
| Contra Costa | 193,400 | 100 | 0 | 193,500 |
| Del Norte | 172,300 | 15,900 | 0 | 188,200 |
| El Dorado | 405,000 | 66,300 | 0 | 471,300 |
| Fresno | 776,300 | 195,600 | 0 | 971,900 |
| Glenn | 290,100 | 12,400 | 0 | 302,500 |
| Humboldt | 1,541,900 | 126,600 | 500 | 1,669,000 |
| Imperial | 1,800 | 13,900 | 0 | 15,700 |
| Inyo | 307,100 | 147,000 | 0 | 454,100 |
| Kern | 0 | 0 | 0 | 0 |
| Kings | 149,000 | 1,600 | 0 | 150,600 |
| Lake | 354,900 | 127,400 | 0 | 482,300 |
| Lassen | 584,500 | 376,800 | 0 | 961,300 |
| Los Angeles | 0 | 0 | 0 | 0 |
| Madera | 368,100 | 44,300 | 0 | 412,400 |
| Marin | 0 | 0 | 0 | 0 |
| Mariposa | 426,900 | 88,900 | 0 | 515,800 |
| Mendocino | 1,838,400 | 156,700 | 0 | 1,995,100 |
| Merced | 393,800 | 33,400 | 0 | 427,200 |
| Modoc | 371,100 | 145,100 | 0 | 516,200 |
| Mono | 2,400 | 3,800 | 0 | 6,200 |
| Monterey | 1,249,700 | 39,900 | 0 | 1,289,600 |
| Napa | 360,400 | 63,100 | 0 | 423,500 |
| Nevada | 299,600 | 37,700 | 7,900 | 345,200 |
| Orange | 0 | 0 | 3,000 | 3,000 |
| Placer | 277,200 | 61,300 | 1,600 | 340,100 |
| Plumas | 96,600 | 21,700 | 0 | 118,300 |
| Riverside | 556,600 | 170,800 | 12,100 | 739,500 |
| Sacramento | 113,600 | 100 | 0 | 113,700 |
| San Benito | 728,800 | 82,800 | 0 | 811,600 |
| San Bernardino | 313,500 | 181,800 | 18,400 | 513,700 |
| San Diego | 1,090,200 | 315,400 | 0 | 1,405,600 |
| San Francisco | 0 | 0 | 0 | 0 |
| San Joaquin | 150,100 | 300 | 0 | 150,400 |
| San Luis Obispo | 1,406,000 | 47,600 | 0 | 1,453,600 |
| San Mateo | 176,100 | 100 | 0 | 176,200 |
| Santa Barbara | 0 | 0 | 0 | 0 |
| Santa Clara | 553,700 | 1,600 | 0 | 555,300 |

Table 4. (continued) CAL FIRE Direct Protection Area, Acres by Jurisdiction (2016) *

| COUNTY | STATE | FEDERAL | CDFLWC | TOTAL ACRES |
|--------------|-------------------|------------------|---------------|-------------------|
| Santa Cruz | 228,900 | 5,900 | 0 | 234,800 |
| Shasta | 1,142,500 | 276,000 | 0 | 1,418,500 |
| Sierra | 0 | 0 | 0 | 0 |
| Siskiyou | 1,011,900 | 248,700 | 0 | 1,260,600 |
| Solano | 86,900 | 2,100 | 1,400 | 90,400 |
| Sonoma | 793,700 | 23,600 | 0 | 817,300 |
| Stanislaus | 448,000 | 1,800 | 0 | 449,800 |
| Sutter | 0 | 0 | 0 | 0 |
| Tehama | 1,144,900 | 85,200 | 0 | 1,230,100 |
| Trinity | 258,900 | 85,900 | 0 | 344,800 |
| Tulare | 573,900 | 47,200 | 0 | 621,100 |
| Tuolumne | 299,000 | 87,500 | 0 | 386,500 |
| Ventura | 0 | 0 | 0 | 0 |
| Yolo | 180,100 | 28,600 | 0 | 208,700 |
| Yuba | 184,800 | 6,200 | 0 | 191,000 |
| TOTAL | 23,694,400 | 3,696,500 | 45,800 | 27,436,700 |

STATE - State of California

FEDERAL - Federal Lands

CDFLWC - CAL FIRE Local Wildland Contract

*Acres rounded to nearest hundred

Source: DirectProtectionAreas16_3, SRA16_2

Map and data prepared by CAL FIRE Fire and Resource Assessment Program (FRAP)

Table 5. Large Fires 300 Acres and Greater - State and Contract Counties Direct Protection Area

| Incident # | County | Fire Name | Date | | Origin | Acres Burned | Veg. | Cause | Structures | | Fatalities | |
|------------|-----------------|-----------|----------|----------|----------|--------------|-------|-------------------|------------|------|------------|-------|
| | | | Start | Cont. | | | | | Dest. | Dam. | Fire | Civil |
| BEU-2369 | MONTEREY | METZ | 05/22/16 | 05/25/16 | CAL FIRE | 3,876 | B,G | DEBRIS BURNING | | | | |
| MVU-14498 | SAN DIEGO | BORDER 3 | 06/19/16 | 07/01/16 | CAL FIRE | 7,609 | B,G | UNDETERMINED | 16 | 3 | | 2 |
| MMU-12363 | MERCED | DINOSAUR | 06/25/16 | 06/26/16 | CAL FIRE | 1,246 | G | VEHICLE | | | | |
| AEU-17670 | SACRAMENTO | RANCHO | 06/28/16 | 06/30/16 | CAL FIRE | 372 | G | VEHICLE | | | | |
| NEU-15200 | PLACER | TRAILHEAD | 06/28/16 | 08/14/16 | CAL FIRE | 5,645 | B,T | UNDETERMINED | | | | |
| TGU-5731 | TEHAMA | COLYEAR | 06/30/16 | 07/06/16 | CAL FIRE | 464 | B,G | ELECTRICAL POWER | | | | |
| FKU-9100 | FRESNO | CURRY | 07/01/16 | 07/04/16 | CAL FIRE | 2,944 | B,G | UNDETERMINED | | | | |
| KRN-24109 | KERN | DEER | 07/01/16 | 07/10/16 | CC | 1,785 | B,G,T | UNDETERMINED | | | | |
| TCU-6914 | CALAVERAS | APPALOOSA | 07/02/16 | 07/15/16 | CAL FIRE | 310 | B,G,T | ELECTRICAL POWER | 1 | | | |
| SHU-6739 | SHASTA | FIDDLER | 07/08/16 | 07/09/16 | CAL FIRE | 303 | B,G,T | ARSON | 1 | 1 | | |
| KRN-25390 | KERN | FORT | 07/08/16 | 07/09/16 | CC | 554 | B,G | UNDETERMINED | | | | |
| LAC-198015 | LOS ANGELES | SAGE | 07/09/16 | 07/16/16 | CC | 1,100 | B,G,T | CAMPFIRE | | 2 | | |
| TCU-7341 | CALAVERAS | PACHECO | 07/12/16 | 07/18/16 | CAL FIRE | 341 | B,G,T | EQUIPMENT | 2 | | | |
| BEU-3422 | MONTEREY | SOBERANES | 07/22/16 | 10/13/16 | CAL FIRE | 132,127 | B,G,T | CAMPFIRE | 68 | 5 | 1 | |
| FKU-10852 | FRESNO | GOOSE | 07/30/16 | 08/09/16 | CAL FIRE | 2,241 | B,G | ARSON | 9 | 1 | | |
| BTU-11608 | BUTTE | 99 | 08/02/16 | 08/08/16 | CAL FIRE | 520 | G | PLAYING WITH FIRE | | | | |
| LNU-7135 | YOLO | COLD | 08/02/16 | 08/12/16 | CAL FIRE | 5,731 | B,G | UNDETERMINED | 2 | | | |
| FKU-11358 | FRESNO | MINERAL | 08/08/16 | 08/19/16 | CAL FIRE | 7,050 | B,G | ARSON | 2 | | | |
| SLU-8948 | SAN LUIS OBISPO | CHIMNEY | 08/13/16 | 09/07/16 | CAL FIRE | 46,235 | B,T | VEHICLE | 70 | 8 | | |
| BEU-2369 | MONTEREY | METZ | 05/22/16 | 05/25/16 | CAL FIRE | 3,876 | B,G | DEBRIS BURNING | | | | |

The information on this list is gathered from the ICS 209 incident reports then verified in the CAIRS database and includes information on fire activity within the Direct Protection Areas of CAL FIRE and Contract Counties.

Table 5. (continued) Large Fires 300 Acres and Greater - State and Contract Counties Direct Protection Area

| Incident # | County | Fire Name | Date | | Origin | Acres Burned | Veg. | Cause | Structures | | Fatalities | |
|--------------|-------------|-----------|----------|----------|----------|----------------|-------|------------------|------------|-----------|------------|----------|
| | | | Start | Cont. | | | | | Dest. | Dam. | Fire | Civil |
| LNU-7582 | LAKE | CLAYTON | 08/13/16 | 09/03/16 | CAL FIRE | 3,929 | B,G | ARSON | 300 | 28 | | |
| NEU-20037 | YUBA | BEALE | 08/18/16 | 08/19/16 | CAL FIRE | 389 | G | MISCELLANEOUS | | | | |
| HUU-6956 | HUMBOLDT | TULLY | 08/22/16 | 09/09/16 | CAL FIRE | 599 | B,T | ARSON | 3 | | | |
| SKU-7392 | SISKIYOU | GRADE | 08/24/16 | 09/10/16 | CAL FIRE | 710 | B,G,T | ELECTRICAL POWER | 10 | 1 | | |
| TCU-9339 | CALAVERAS | WILLOW | 08/28/16 | 09/04/16 | CAL FIRE | 450 | B,G,T | VEHICLE | | 1 | | |
| RRU-105125 | RIVERSIDE | BOGART | 08/30/16 | 09/05/16 | CAL FIRE | 1,470 | B,G | UNDETERMINED | 1 | | | |
| KRN-32226 | KERN | RANGE | 08/26/16 | 08/31/16 | CC | 600 | B,G,T | HUMAN | | | | |
| KRN-32375 | KERN | HAVILA | 08/27/16 | 08/31/16 | CC | 304 | B,G | UNDETERMINED | | | | |
| BTU-13655 | BUTTE | SADDLE | 09/05/16 | 09/22/16 | CAL FIRE | 800 | B,G,T | VEHICLE | 3 | | | |
| LMU-4700 | MODOC | HOWARD | 09/11/16 | 09/15/16 | CAL FIRE | 380 | B,G,T | RAILROAD | | | | |
| LMU-4695 | LASSEN | WILLARD | 09/11/16 | 10/12/16 | CAL FIRE | 2,575 | B,G,T | UNDETERMINED | 7 | | | |
| TGU-8080 | TAHEMA | HOG | 09/13/16 | 09/13/16 | CAL FIRE | 321 | B,G,T | ELECTRICAL POWER | | | | |
| KRN-35570 | KERN | FLAT | 09/19/16 | 09/22/16 | CC | 307 | G | EQUIPMENT | | | | |
| LNU-9129 | SONOMA | SAWMILL | 09/25/16 | 10/01/16 | CAL FIRE | 1,547 | B,G | UNDETERMINED | | | | |
| TCU-10403 | TUOLUMNE | MARSHES | 09/26/16 | 10/04/16 | CAL FIRE | 1,080 | B,G,T | VEHICLE | | | | |
| SCU-6912 | SANTA CLARA | LOMA | 09/26/16 | 11/08/16 | CAL FIRE | 4,474 | B,T | UNDETERMINED | 28 | 1 | | |
| TOTAL | | | | | | 240,388 | | | 523 | 51 | 1 | 2 |

The information on this list is gathered from the ICS 209 incident reports then verified in the CAIRS database and includes information on fire activity within the Direct Protection Areas of CAL FIRE and Contract Counties.

Table 6. Large Fires 300 Acres and Greater - Other Agencies Direct Protection Areas

| Incident # | County | Fire Name | Date | | Origin | Acres Burned | Veg. | Cause | Structures | | Fatalities | |
|------------|-----------------|--------------|----------|----------|--------|--------------|-------|--------------|------------|------|------------|-------|
| | | | Start | Cont. | | | | | Dest. | Dam. | Fire | Civil |
| SLU-5280 | SAN LUIS OBISPO | CAMP ROBERTS | 05/18/16 | 05/20/16 | MIL | 3,712 | G | UNDETERMINED | | | | |
| CND-1134 | TULARE | CHIMNEY | 06/01/16 | 06/07/16 | BLM | 1,324 | B,G | HUMAN | | | | |
| FHL-1475 | MONTEREY | STONY | 06/02/16 | 06/17/16 | USFS | 3,000 | B,G | UNDETERMINED | | | | |
| CND-1171 | SAN LUIS OBISPO | SODA | 06/04/16 | 06/06/16 | BLM | 2,003 | B,G | UNDETERMINED | | | | |
| LAC-457 | LOS ANGELES | OLD | 06/04/16 | 06/10/16 | LOCAL | 465 | B,G | UNDETERMINED | 9 | 1 | | |
| LPF-1504 | MONTEREY | COLEMAN | 06/04/16 | 06/17/16 | USFS | 2,520 | B,G | UNDETERMINED | 1 | | | |
| KNF-4500 | SISKIYOU | PONY | 06/07/16 | 10/02/16 | USFS | 2,860 | B,T | UNDETERMINED | | | | |
| SBC-7344 | SANTA BARBARA | SHERPA | 06/15/16 | 06/23/16 | USFS | 7,474 | B,G | UNDETERMINED | 5 | | | |
| ANF-2417 | LOS ANGELES | RESERVOIR | 06/20/16 | 07/05/16 | USFS | 1,146 | B,G | HUMAN | | | | 1 |
| LAC-177288 | LOS ANGELES | FISH | 06/20/16 | 07/05/16 | USFS | 4,253 | B,G | HUMAN | | | | |
| CND-1415 | KERN | ERSKINE | 06/23/16 | 07/09/16 | USFS | 48,019 | B,G,T | UNDETERMINED | 286 | 12 | | 2 |
| INF-992 | MONO | MARINA | 06/24/16 | 07/04/16 | USFS | 654 | B,T | UNDETERMINED | 1 | | | |
| YNP-41 | MARIPOSA | LAKES | 06/26/16 | 10/31/16 | NPS | 1,001 | B,T | LIGHTNING | | | | |
| LPF-1986 | VENTURA | PINE | 06/30/16 | 07/17/16 | USFS | 2,304 | B,T | UNDETERMINED | | | | |
| MCP-2125 | SAN DIEGO | ROBLAR | 07/21/16 | 07/27/16 | MIL | 1,245 | B,G | UNDETERMINED | | | | |
| ANF-3008 | LOS ANGELES | SAND | 07/22/16 | 08/06/16 | USFS | 41,383 | B,G,T | UNDETERMINED | 116 | 20 | | 1 |
| INF-1415 | MONO | CLARK | 08/04/16 | 08/12/16 | USFS | 2,819 | B,G,T | LIGHTNING | | | | |
| BDF-10205 | SAN BERNARDINO | PILOT | 08/07/16 | 08/16/16 | USFS | 8,110 | B,G,T | UNDETERMINED | | | | |
| INF-1457 | INYO | HORSESHOE | 08/09/16 | 08/17/16 | USFS | 369 | B,T | UNDETERMINED | | | | |
| SQF-2595 | KERN | CEDAR | 08/16/16 | 09/24/16 | USFS | 29,322 | B,T | UNDETERMINED | 6 | | | |
| BDF-10468 | SAN BERNARDINO | BLUECUT | 08/16/16 | 09/08/16 | USFS | 36,274 | B,G,T | UNDETERMINED | 321 | 8 | | |
| LPF-2809 | SANTA BARBARA | REY | 08/18/16 | 09/15/16 | USFS | 32,606 | B,G | UNDETERMINED | 5 | | | |
| STF-2257 | ALPINE | MOKELUMNE | 08/19/16 | 09/20/16 | USFS | 655 | B,G,T | LIGHTNING | | | | |
| SQF-2683 | TULARE | TULE | 08/22/16 | 08/22/16 | USFS | 395 | B,G,T | UNDETERMINED | | | | |
| KNF-7501 | SISKIYOU | GAP | 08/27/16 | 09/16/16 | USFS | 33,867 | B,T | UNDETERMINED | 14 | | | |
| SNF-2154 | FRESNO | CROWN | 09/15/16 | 10/31/16 | USFS | 800 | T | LIGHTNING | | | | |

Table 6. (continued) Large Fires 300 Acres and Greater - Other Agencies Direct Protection Areas

| Incident# | County | Fire Name | Date | | Origin | Acres Burned | Veg. | Cause | Structures | | Fatalities | |
|--------------|---------------|--------------|----------|----------|--------|----------------|-------|--------------|------------|-----------|------------|----------|
| | | | Start | Cont. | DPA | Total | Type | | Dest. | Dam. | Fire | Civil |
| AFV-3151 | SANTA BARBARA | CANYON | 09/17/16 | 09/24/16 | MIL | 12,742 | B | UNDETERMINED | | | 1 | |
| MDF-910 | MODOC | SOUP COMPLEX | 09/17/16 | 10/31/16 | USFS | 2,722 | G,T | UNDETERMINED | | | | |
| INF-1763 | MONO | OWENS RIVER | 09/17/16 | 10/15/16 | USFS | 5,443 | B,G,T | UNDETERMINED | 4 | | | |
| SQF-3261 | TULARE | SLATE | 10/04/16 | 11/05/16 | USFS | 2,160 | B,T | LIGHTNING | | | | |
| SNF-2370 | FRESNO | SACATA | 10/11/16 | 10/19/16 | USFS | 2,100 | B,G,T | UNDETERMINED | | | | |
| SQF-3384 | TULARE | JACOBSON | 10/20/16 | 11/01/16 | USFS | 1,702 | B,T | UNDETERMINED | | | | |
| SQF-3456 | TULARE | MEADOW | 10/29/16 | 11/22/16 | USFS | 4,347 | B,T | LIGHTNING | | | | |
| SQF-3464 | TULARE | HIDDEN | 11/02/16 | 11/23/16 | USFS | 2,768 | B,T | LIGHTNING | | | | |
| TOTAL | | | | | | 302,564 | | | 768 | 41 | 1 | 4 |

The information on this list is not a complete or final list of other agency large fires. This information is gathered from the ICS 209 incident reports. Federal agencies are not obligated to provide reports to CAL FIRE on fire activity within their jurisdiction. CAL FIRE assisted on these fires with either equipment or resources.

Origin DPA = The agency on whose Direct Protection Area (DPA) the fires started

Acres Burned = Acres burned in CAL FIRE area, other agencies and total area burned

UI = Under Investigation

Structures Destroyed = Residence, commercial property, outbuilding or other structure that is declared lost.

Structures Damaged = Residence, commercial property, outbuilding or other structure that its usefulness or value is impaired.

Fatalities = Death of fire service personnel or civilian assigned to the incident.

T = Timber

B = Brush

W = Woodland

G = Grass

A = Agricultural Products

LOCAL = Local Fire Departments

CC = Contract Counties

MIL = Military Land

BLM = Bureau of Land Management

BIA = Bureau of Indian Affairs

FWS = Fish and Wildlife Service

NPS = National Park Service

USFS = United States Forest Service

Table 7. Number of Fires and Acres Burned by Cause and by Size in Contract Counties

Number of Fires by Cause

| Contract Counties | Total | Arson | Camp-fire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|-------------------|-------|-------|-----------|----------------|-------------|------------|-------|-------|-------|----------|---------|--------|---------|
| Kern | 150 | 2 | 1 | 5 | 17 | 28 | 0 | 27 | 0 | 0 | 2 | 68 | 0 |
| Los Angeles | 101 | 8 | 2 | 4 | 0 | 12 | 0 | 27 | 0 | 0 | 11 | 37 | 0 |
| Marin | 14 | 1 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 0 | 3 | 0 |
| Orange | 42 | 4 | 1 | 1 | 0 | 0 | 2 | 23 | 0 | 0 | 0 | 11 | 0 |
| Santa Barbara | 45 | 4 | 0 | 8 | 1 | 1 | 0 | 20 | 0 | 0 | 0 | 11 | 0 |
| Ventura | 65 | 2 | 0 | 0 | 2 | 3 | 0 | 20 | 1 | 0 | 1 | 35 | 1 |
| TOTAL | 417 | 21 | 4 | 18 | 21 | 44 | 2 | 126 | 1 | 0 | 14 | 165 | 1 |

Number of Acres Burned by Cause

| Contract Counties | Total | Arson | Camp-fire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|-------------------|-------|-------|-----------|----------------|-------------|------------|-------|-------|-------|----------|---------|--------|---------|
| Kern | 4,605 | 2 | 11 | 19 | 92 | 584 | 0 | 1,575 | 0 | 0 | 1 | 2,321 | 0 |
| Los Angeles | 1,366 | 3 | 3 | 31 | 0 | 9 | 0 | 1,176 | 0 | 0 | 4 | 141 | 0 |
| Marin | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 6 | 0 |
| Orange | 166 | 1 | 20 | 98 | 0 | 0 | 1 | 26 | 0 | 0 | 0 | 21 | 0 |
| Santa Barbara | 63 | 1 | 0 | 45 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 4 | 0 |
| Ventura | 230 | 0 | 0 | 0 | 0 | 46 | 0 | 104 | 2 | 0 | 0 | 76 | 1 |
| TOTAL | 6,440 | 7 | 35 | 193 | 92 | 640 | 1 | 2,898 | 2 | 0 | 5 | 2,568 | 1 |

Table 7. (continued) Number of Fires and Acres Burned by Cause and by Size in Contract Counties**Number of Fires by Size**

| Contract Counties | Total | A .25 acres or < | B .26-9.99 acres | C 10-99 acres | D 100-299 acres | E 300-999 acres | F 1000-4999 acres | G 5000 acres > |
|--------------------------|--------------|--------------------------------|-----------------------------|--------------------------|----------------------------|----------------------------|------------------------------|------------------------------|
| Kern | 150 | 65 | 64 | 13 | 3 | 4 | 1 | 0 |
| Los Angeles | 101 | 58 | 38 | 3 | 1 | 0 | 1 | 0 |
| Marin | 14 | 8 | 6 | 0 | 0 | 0 | 0 | 0 |
| Orange | 42 | 33 | 4 | 5 | 0 | 0 | 0 | 0 |
| Santa Barbara | 45 | 27 | 16 | 2 | 0 | 0 | 0 | 0 |
| Ventura | 65 | 46 | 14 | 5 | 0 | 0 | 0 | 0 |
| TOTAL | 417 | 237 | 142 | 28 | 4 | 4 | 2 | 0 |

Data provided by the Contract Counties and collected from the CAIRS database.

Table 8. Number of Fires by Cause, by Unit

| | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|------------------------|--------------|------------|------------|-------------------|----------------|---------------|-----------|------------|-----------|----------|-----------|------------|------------|
| NORTHERN REGION | | | | | | | | | | | | | |
| Amador-El Dorado | 248 | 31 | 4 | 51 | 25 | 31 | 1 | 19 | 1 | 0 | 4 | 53 | 28 |
| Butte | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Humboldt-Del Norte | 133 | 19 | 8 | 12 | 10 | 5 | 1 | 20 | 3 | 0 | 0 | 45 | 10 |
| Lassen-Modoc | 43 | 2 | 2 | 9 | 0 | 3 | 6 | 5 | 0 | 1 | 0 | 9 | 6 |
| Mendocino | 118 | 7 | 5 | 24 | 14 | 9 | 0 | 15 | 1 | 1 | 0 | 29 | 13 |
| Nevada-Yuba-Placer | 319 | 16 | 22 | 67 | 19 | 37 | 3 | 34 | 5 | 0 | 5 | 94 | 17 |
| San Mateo-Santa Cruz | 55 | 2 | 5 | 2 | 11 | 3 | 0 | 10 | 0 | 0 | 2 | 16 | 4 |
| Santa Clara | 121 | 0 | 1 | 2 | 13 | 14 | 1 | 10 | 0 | 1 | 2 | 61 | 16 |
| Shasta-Trinity | 131 | 13 | 5 | 28 | 11 | 6 | 9 | 13 | 2 | 0 | 4 | 28 | 12 |
| Siskiyou | 161 | 3 | 8 | 20 | 10 | 5 | 21 | 60 | 1 | 1 | 3 | 22 | 7 |
| Sonoma-Lake-Napa | 278 | 29 | 13 | 20 | 40 | 28 | 0 | 33 | 3 | 0 | 2 | 73 | 37 |
| Tehama-Glenn | 63 | 2 | 1 | 5 | 9 | 14 | 2 | 5 | 0 | 0 | 0 | 19 | 6 |
| TOTAL | 1,672 | 125 | 74 | 240 | 162 | 155 | 44 | 224 | 16 | 4 | 22 | 450 | 156 |
| SOUTHERN REGION | | | | | | | | | | | | | |
| Fresno-Kings | 108 | 27 | 1 | 14 | 18 | 5 | 4 | 10 | 0 | 0 | 2 | 21 | 6 |
| Madera-Mariposa | 176 | 7 | 1 | 29 | 9 | 19 | 1 | 34 | 1 | 0 | 1 | 39 | 35 |
| Riverside | 133 | 13 | 7 | 6 | 5 | 5 | 2 | 22 | 5 | 0 | 1 | 63 | 4 |
| San Benito-Monterey | 81 | 6 | 2 | 4 | 15 | 8 | 0 | 12 | 1 | 0 | 1 | 16 | 16 |
| San Bernardino | 112 | 4 | 17 | 11 | 6 | 3 | 3 | 22 | 1 | 1 | 0 | 39 | 5 |
| San Diego | 131 | 10 | 7 | 14 | 16 | 8 | 5 | 17 | 2 | 0 | 3 | 36 | 13 |
| San Luis Obispo | 146 | 8 | 7 | 13 | 17 | 20 | 0 | 22 | 0 | 0 | 3 | 37 | 19 |
| Tulare | 71 | 28 | 1 | 6 | 5 | 3 | 1 | 4 | 1 | 0 | 1 | 14 | 7 |
| Tuolumne-Calaveras | 186 | 2 | 4 | 43 | 17 | 24 | 2 | 21 | 5 | 0 | 3 | 45 | 20 |
| TOTAL | 1,144 | 105 | 47 | 140 | 108 | 95 | 18 | 164 | 16 | 1 | 15 | 310 | 125 |
| STATE TOTAL | 2,816 | 230 | 121 | 380 | 270 | 250 | 62 | 388 | 32 | 5 | 37 | 760 | 281 |

Table 9. Number of Fires by Cause, by County

| COUNTY | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|--------------|-------|-------|----------|----------------|-------------|------------|-------|-------|-------|----------|---------|--------|---------|
| Alameda | 39 | 0 | 0 | 0 | 8 | 4 | 0 | 4 | 0 | 0 | 0 | 16 | 7 |
| Alpine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Amador | 57 | 2 | 0 | 17 | 6 | 7 | 1 | 7 | 0 | 0 | 3 | 5 | 9 |
| Butte | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Calaveras | 94 | 1 | 3 | 22 | 9 | 14 | 0 | 12 | 2 | 0 | 1 | 21 | 9 |
| Colusa | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Contra Costa | 28 | 0 | 0 | 0 | 4 | 6 | 0 | 1 | 0 | 0 | 0 | 15 | 2 |
| Del Norte | 28 | 7 | 2 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 14 | 1 |
| El Dorado | 169 | 27 | 4 | 34 | 15 | 20 | 0 | 11 | 0 | 0 | 1 | 41 | 16 |
| Fresno | 106 | 27 | 1 | 14 | 18 | 5 | 4 | 10 | 0 | 0 | 1 | 20 | 6 |
| Glenn | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| Humboldt | 105 | 12 | 6 | 11 | 10 | 4 | 0 | 20 | 2 | 0 | 0 | 31 | 9 |
| Imperial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Inyo | 15 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 9 | 0 |
| Kings | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Lake | 74 | 16 | 1 | 5 | 13 | 6 | 0 | 6 | 0 | 0 | 2 | 20 | 5 |
| Lassen | 31 | 2 | 2 | 8 | 0 | 1 | 4 | 3 | 0 | 0 | 0 | 6 | 5 |
| Madera | 81 | 5 | 0 | 11 | 4 | 11 | 1 | 27 | 0 | 0 | 1 | 6 | 15 |
| Mariposa | 60 | 2 | 0 | 15 | 3 | 7 | 0 | 5 | 1 | 0 | 0 | 13 | 14 |
| Mendocino | 118 | 7 | 5 | 24 | 14 | 9 | 0 | 15 | 1 | 1 | 0 | 29 | 13 |
| Merced | 35 | 0 | 1 | 3 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 20 | 6 |
| Modoc | 8 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 2 | 1 |
| Mono | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Monterey | 58 | 5 | 2 | 3 | 12 | 3 | 0 | 6 | 1 | 0 | 1 | 14 | 11 |
| Napa | 46 | 4 | 1 | 2 | 8 | 2 | 0 | 6 | 1 | 0 | 0 | 17 | 5 |
| Nevada | 125 | 7 | 10 | 26 | 10 | 11 | 1 | 16 | 2 | 0 | 0 | 35 | 7 |
| Placer | 133 | 5 | 10 | 31 | 9 | 16 | 2 | 13 | 2 | 0 | 4 | 33 | 8 |

Table 9. (continued) Number of Fires by Cause, by County

| COUNTY | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|-----------------|-------|-------|----------|----------------|-------------|------------|-------|-------|-------|----------|---------|--------|---------|
| Plumas | 4 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Riverside | 133 | 13 | 7 | 6 | 5 | 5 | 2 | 22 | 5 | 0 | 1 | 63 | 4 |
| Sacramento | 21 | 2 | 0 | 0 | 3 | 4 | 0 | 1 | 1 | 0 | 0 | 7 | 3 |
| San Benito | 23 | 1 | 0 | 1 | 3 | 5 | 0 | 6 | 0 | 0 | 0 | 2 | 5 |
| San Bernardino | 97 | 4 | 15 | 10 | 6 | 2 | 3 | 21 | 0 | 1 | 0 | 30 | 5 |
| San Diego | 131 | 10 | 7 | 14 | 16 | 8 | 5 | 17 | 2 | 0 | 3 | 36 | 13 |
| San Francisco | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| San Joaquin | 13 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 7 | 3 |
| San Luis Obispo | 146 | 8 | 7 | 13 | 17 | 20 | 0 | 22 | 0 | 0 | 3 | 37 | 19 |
| San Mateo | 23 | 0 | 2 | 1 | 3 | 1 | 0 | 7 | 0 | 0 | 2 | 5 | 2 |
| Santa Clara | 37 | 0 | 1 | 2 | 1 | 4 | 0 | 5 | 0 | 0 | 2 | 17 | 5 |
| Santa Cruz | 32 | 2 | 3 | 1 | 8 | 2 | 0 | 3 | 0 | 0 | 0 | 11 | 2 |
| Shasta | 114 | 13 | 5 | 24 | 7 | 6 | 9 | 14 | 2 | 0 | 3 | 22 | 9 |
| Sierra | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Siskiyou | 160 | 3 | 8 | 20 | 10 | 5 | 21 | 59 | 1 | 1 | 3 | 22 | 7 |
| Solano | 11 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
| Sonoma | 121 | 8 | 10 | 7 | 13 | 12 | 0 | 21 | 2 | 0 | 0 | 27 | 21 |
| Stanislaus | 18 | 0 | 1 | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 10 | 2 |
| Sutter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tehama | 59 | 2 | 1 | 5 | 9 | 13 | 2 | 5 | 0 | 0 | 0 | 19 | 3 |
| Trinity | 18 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 3 |
| Tulare | 71 | 28 | 1 | 6 | 5 | 3 | 1 | 4 | 1 | 0 | 1 | 14 | 7 |
| Tuolumne | 79 | 1 | 0 | 21 | 6 | 8 | 2 | 8 | 3 | 0 | 2 | 20 | 8 |
| Yolo | 22 | 0 | 0 | 6 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 6 | 2 |
| Yuba | 61 | 4 | 2 | 10 | 0 | 10 | 0 | 5 | 1 | 0 | 1 | 26 | 2 |
| STATE TOTAL | 2,816 | 230 | 121 | 380 | 270 | 250 | 62 | 388 | 32 | 5 | 37 | 760 | 281 |

Contract County statistics can be found in Table 7.

Table 10. Number of Fires and Acres Burned by Cause — Detailed

| CAL FIRE Wildland Fire Cause | Incident Count | % of Total Incident Count | Incident Count Acres Burned => 10 | Acres Burned | % of Total Acres Burned |
|------------------------------|----------------|---------------------------|-----------------------------------|----------------|-------------------------|
| Arson | 230 | 8% | 15 | 14,767 | 6% |
| HOT START | 105 | | 7 | 7,978 | |
| IGNITABLE LIQUID | 4 | | 0 | 0 | |
| INCENDIARY DEVICE | 28 | | 2 | 208 | |
| Campfire | 121 | 4% | 3 | 132,209 | 54% |
| CEREMONIAL | 3 | | 0 | 0 | |
| NO PERMIT | 74 | | 1 | 40 | |
| PROPER CLEARANCE | 14 | | 0 | 5 | |
| TOOLS PRESENT | 5 | | 0 | 8 | |
| PERMIT | 3 | | 0 | 2 | |
| PROPER CLEARANCE | 2 | | 0 | 0 | |
| TOOLS PRESENT | 1 | | 0 | 2 | |
| Debris Burning | 380 | 13% | 5 | 4,117 | 2% |
| COMMERCIAL USE | 23 | | 0 | 13 | |
| NO PERMIT/PROPER CLEARANCES | 8 | | 0 | 2 | |
| NO PERMIT/TOOLS PRESENT | 3 | | 0 | 0 | |
| PERMIT/PROPER CLEARANCES | 7 | | 0 | 8 | |
| PERMIT/TOOLS PRESENT | 1 | | 0 | 0 | |
| RESIDENTIAL USE | 298 | | 2 | 141 | |
| NO PERMIT/PROPER CLEARANCES | 118 | | 2 | 72 | |
| NO PERMIT/TOOLS PRESENT | 55 | | 0 | 23 | |
| PERMIT/PROPER CLEARANCES | 32 | | 0 | 9 | |
| PERMIT/TOOLS PRESENT | 43 | | 0 | 22 | |
| Electrical Power | 270 | 10% | 23 | 2,779 | 1% |
| ANIMALS | 23 | | 4 | 382 | |
| HARDWARE | 49 | | 5 | 1,151 | |
| LINE SLAP | 18 | | 1 | 28 | |
| LINE'S DOWN | 103 | | 9 | 606 | |
| VEGETATION CONTACT | 43 | | 1 | 90 | |

Detailed cause information was not reported for every fire and will not equal total cause counts.

Table 10. (continued) Number of Fires and Acres Burned by Cause — Detailed

| CAL FIRE Wildland Fire Cause | Incident Count | % of Total Incident Count | Incident Count Acres Burned => 10 | Acres Burned | % of Total Acres Burned |
|-------------------------------------|----------------|---------------------------|-----------------------------------|--------------|-------------------------|
| Equipment Use | 250 | 9% | 33 | 1,814 | 1% |
| COMMERCIAL USE | 59 | | 10 | 435 | |
| MOBILE EQUIPMENT/CHAFF | 4 | | 1 | 92 | |
| MOBILE EQUIPMENT/HOT EXHAUST | 4 | | 2 | 52 | |
| MOBILE EQUIPMENT/MECHANICAL | 5 | | 1 | 40 | |
| MOBILE EQUIPMENT/ROCK STRIKE | 21 | | 1 | 84 | |
| PORTABLE EQUIPMENT/CHAFF | 2 | | 1 | 11 | |
| PORTABLE EQUIPMENT/HOT EXHAUST | 2 | | 1 | 26 | |
| PORTABLE EQUIPMENT/MECHANICAL | 4 | | 1 | 23 | |
| PORTABLE EQUIPMENT/ROCK STRIKE | 4 | | 0 | 6 | |
| PORTABLE EQUIPMENT/WELDING/GRINDING | 9 | | 1 | 57 | |
| NON COMERCIAL USE | 161 | | 21 | 1,298 | |
| MOBILE EQUIPMENT/CHAFF | 7 | | 1 | 29 | |
| MOBILE EQUIPMENT/HOT EXHAUST | 11 | | 1 | 48 | |
| MOBILE EQUIPMENT/MECHANICAL | 13 | | 2 | 473 | |
| MOBILE EQUIPMENT/ROCK STRIKE | 48 | | 10 | 462 | |
| PORTABLE EQUIPMENT/CHAFF | 5 | | 1 | 28 | |
| PORTABLE EQUIPMENT/HOT EXHAUST | 6 | | 1 | 45 | |
| PORTABLE EQUIPMENT/MECHANICAL | 8 | | 0 | 7 | |
| PORTABLE EQUIPMENT/ROCK STRIKE | 8 | | 0 | 14 | |
| PORTABLE EQUIPMENT/WELDING/GRINDING | 34 | | 3 | 155 | |
| Lightning | 62 | 2% | 1 | 182 | 0% |
| Miscellaneous | 388 | 14% | 15 | 2,716 | 1% |
| EXPLOSIVE DEVICE | 1 | | 1 | 389 | |
| FIREWORKS | 27 | | 1 | 112 | |
| DANGEROUS | 14 | | 0 | 26 | |
| SAFE AND SANE | 7 | | 0 | 2 | |
| GLASS REFRACTION | 1 | | 0 | 0 | |
| OTHER | 85 | | 3 | 231 | |

Detailed cause information was not reported for every fire and will not equal total cause counts.

Table 10. (continued) Number of Fires and Acres Burned by Cause — Detailed

| CAL FIRE Wildland Fire Cause | Incident Count | % of Total Incident Count | Incident Count Acres Burned => 10 | Acres Burned | % of Total Acres Burned |
|--------------------------------------|----------------|---------------------------|---|----------------|-------------------------|
| SHOOTING | 17 | | 7 | 277 | |
| AMMUNITION/COPPER JACKET | 2 | | 1 | 86 | |
| TARGET/METAL | 2 | | 1 | 10 | |
| TARGET/OTHER | 2 | | 0 | 0 | |
| TARGET/ROCK | 4 | | 2 | 50 | |
| SPONTANEOUS COMBUSTION | 14 | | 0 | 2 | |
| Playing With Fire | 32 | 1% | 1 | 45 | 0% |
| 10-13 YEARS OLD | 10 | | 1 | 31 | |
| 14+ YEARS OLD | 9 | | 0 | 12 | |
| 5-9 YEARS OLD | 7 | | 0 | 3 | |
| < 5 YEAR OLD | 1 | | 0 | 0 | |
| Railroad | 5 | 0% | 2 | 410 | 0% |
| EXHAUST | 2 | | 1 | 29 | |
| MECHANICAL | 1 | | 0 | 0 | |
| Smoking | 37 | 1% | 2 | 145 | 0% |
| SMOKING MATERIAL | 25 | | 2 | 145 | |
| SMOKING PARAPHERNALIA | 6 | | 0 | 1 | |
| Undetermined | 760 | 27% | 61 | 34,384 | 14% |
| Vehicle | 281 | 10% | 34 | 50,987 | 21% |
| CHAFF | 13 | | 3 | 46,350 | |
| EXHAUST | 84 | | 13 | 2,915 | |
| MECHANICAL | 84 | | 9 | 803 | |
| TRAFFIC COLLISION | 34 | | 3 | 239 | |
| Total Wildland Fire Incidents | 2,816 | 100% | 195 | 244,556 | 100% |

Detailed cause information was not reported for every fire and will not equal total cause counts.

Table 11. Number of Fires by Size, by Unit

| | | A | | | D | E | F | G |
|------------------------|--------------|-----------------|-----------------|-------------|---------------|---------------|-----------------|--------------|
| | Total | .25 acres or < | .26-9.99 acres | 10-99 acres | 100-299 acres | 300-999 acres | 1000-4999 acres | 5000 acres > |
| NORTHERN REGION | | | | | | | | |
| Amador-El Dorado | 248 | 156 | 76 | 13 | 2 | 1 | 0 | 0 |
| Butte | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Humboldt-Del Norte | 133 | ^B 95 | ^C 32 | 4 | 1 | 1 | 0 | 0 |
| Lassen-Modoc | 43 | 26 | 14 | 1 | 0 | 1 | 1 | 0 |
| Mendocino | 118 | 84 | 29 | 5 | 0 | 0 | 0 | 0 |
| Nevada-Yuba-Placer | 319 | 229 | 81 | 7 | 0 | 1 | 0 | 1 |
| San Mateo-Santa Cruz | 55 | 46 | 8 | 1 | 0 | 0 | 0 | 0 |
| Santa Clara | 121 | 46 | 49 | 20 | 5 | 0 | 1 | 0 |
| Shasta-Trinity | 131 | 77 | 48 | 5 | 0 | 1 | 0 | 0 |
| Siskiyou | 161 | 138 | 18 | 4 | 0 | 1 | 0 | 0 |
| Sonoma-Lake-Napa | 278 | 186 | 75 | 13 | 1 | 0 | 2 | 1 |
| Tehama-Glenn | 63 | 34 | 20 | 7 | 0 | 2 | 0 | 0 |
| TOTAL | 1,672 | 1,118 | 451 | 80 | 9 | 8 | 4 | 2 |
| SOUTHERN REGION | | | | | | | | |
| Fresno-Kings | 108 | 58 | 37 | 3 | 7 | 0 | 2 | 1 |
| Madera-Mariposa | 176 | 76 | 84 | 14 | 1 | 0 | 1 | 0 |
| Riverside | 133 | 84 | 42 | 3 | 3 | 0 | 1 | 0 |
| San Benito-Monterey | 81 | 36 | 32 | 9 | 2 | 0 | 1 | 1 |
| San Bernardino | 112 | 90 | 21 | 0 | 1 | 0 | 0 | 0 |
| San Diego | 131 | 87 | 37 | 5 | 1 | 0 | 0 | 1 |
| San Luis Obispo | 146 | 71 | 65 | 8 | 1 | 0 | 0 | 1 |
| Tulare | 71 | 18 | 46 | 7 | 0 | 0 | 0 | 0 |
| Tuolumne-Calaveras | 186 | 108 | 60 | 14 | 0 | 3 | 1 | 0 |
| TOTAL | 1,144 | 628 | 424 | 63 | 16 | 3 | 6 | 4 |
| STATE TOTAL | 2,816 | 1,746 | 875 | 143 | 25 | 11 | 10 | 6 |

Table 12. Number of Fires by Size, by County

| | | A | | | D | E | F | G |
|--------------|-------|----------------|----------------|-------------|---------------|---------------|-----------------|--------------|
| COUNTY | Total | .25 acres or < | .26-9.99 acres | 10-99 acres | 100-299 acres | 300-999 acres | 1000-4999 acres | 5000 acres > |
| Alameda | 39 | 10 | 20 | 9 | 0 | 0 | 0 | 0 |
| Alpine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Amador | 57 | 29 | 21 | 6 | 1 | 0 | 0 | 0 |
| Butte | 0 | B 0 | C 0 | 0 | 0 | 0 | 0 | 0 |
| Calaveras | 94 | 54 | 28 | 9 | 0 | 3 | 0 | 0 |
| Colusa | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| Contra Costa | 28 | 13 | 10 | 5 | 0 | 0 | 0 | 0 |
| Del Norte | 28 | 23 | 4 | 0 | 1 | 0 | 0 | 0 |
| El Dorado | 169 | 115 | 49 | 4 | 1 | 0 | 0 | 0 |
| Fresno | 106 | 56 | 37 | 3 | 7 | 0 | 2 | 1 |
| Glenn | 6 | 4 | 2 | 0 | 0 | 0 | 0 | 0 |
| Humboldt | 105 | 72 | 28 | 4 | 0 | 1 | 0 | 0 |
| Imperial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Inyo | 15 | 9 | 5 | 0 | 1 | 0 | 0 | 0 |
| Kings | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lake | 74 | 53 | 14 | 6 | 0 | 0 | 1 | 0 |
| Lassen | 31 | 18 | 11 | 1 | 0 | 0 | 1 | 0 |
| Madera | 81 | 39 | 36 | 5 | 1 | 0 | 0 | 0 |
| Mariposa | 60 | 25 | 33 | 2 | 0 | 0 | 0 | 0 |
| Mendocino | 118 | 84 | 29 | 5 | 0 | 0 | 0 | 0 |
| Merced | 35 | 12 | 15 | 7 | 0 | 0 | 1 | 0 |
| Modoc | 8 | 4 | 3 | 0 | 0 | 1 | 0 | 0 |
| Mono | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Monterey | 58 | 26 | 23 | 5 | 2 | 0 | 1 | 1 |
| Napa | 46 | 26 | 17 | 3 | 0 | 0 | 0 | 0 |
| Nevada | 125 | 104 | 21 | 0 | 0 | 0 | 0 | 0 |
| Placer | 133 | 96 | 35 | 1 | 0 | 0 | 0 | 1 |

Table 12. (continued) Number of Fires by Size, by County

| | | A | B | C | D | E | F | G |
|-----------------|-------|----------------|----------------|-------------|---------------|---------------|-----------------|--------------|
| COUNTY | Total | .25 acres or < | .26-9.99 acres | 10-99 acres | 100-299 acres | 300-999 acres | 1000-4999 acres | 5000 acres > |
| Plumas | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Riverside | 133 | 84 | 42 | 3 | 3 | 0 | 1 | 0 |
| Sacramento | 21 | 11 | 6 | 3 | 0 | 1 | 0 | 0 |
| San Benito | 23 | 10 | 9 | 4 | 0 | 0 | 0 | 0 |
| San Bernardino | 97 | 81 | 16 | 0 | 0 | 0 | 0 | 0 |
| San Diego | 131 | 87 | 37 | 5 | 1 | 0 | 0 | 1 |
| San Francisco | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| San Joaquin | 13 | 4 | 6 | 1 | 2 | 0 | 0 | 0 |
| San Luis Obispo | 146 | 71 | 65 | 8 | 1 | 0 | 0 | 1 |
| San Mateo | 23 | 17 | 5 | 1 | 0 | 0 | 0 | 0 |
| Santa Clara | 37 | 19 | 13 | 2 | 2 | 0 | 1 | 0 |
| Santa Cruz | 32 | 29 | 3 | 0 | 0 | 0 | 0 | 0 |
| Shasta | 114 | 64 | 44 | 5 | 0 | 1 | 0 | 0 |
| Sierra | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Siskiyou | 160 | 137 | 18 | 4 | 0 | 1 | 0 | 0 |
| Solano | 11 | 4 | 5 | 2 | 0 | 0 | 0 | 0 |
| Sonoma | 121 | 88 | 31 | 1 | 0 | 0 | 1 | 0 |
| Stanislaus | 18 | 7 | 5 | 5 | 1 | 0 | 0 | 0 |
| Sutter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tehama | 59 | 31 | 19 | 7 | 0 | 2 | 0 | 0 |
| Trinity | 18 | 14 | 4 | 0 | 0 | 0 | 0 | 0 |
| Tulare | 71 | 18 | 46 | 7 | 0 | 0 | 0 | 0 |
| Tuolumne | 79 | 48 | 27 | 3 | 0 | 0 | 1 | 0 |
| Yolo | 22 | 12 | 7 | 1 | 1 | 0 | 0 | 1 |
| Yuba | 61 | 29 | 25 | 6 | 0 | 1 | 0 | 0 |
| STATE TOTAL | 2,816 | 1,746 | 875 | 143 | 25 | 11 | 10 | 6 |

Contract County statistics can be found in Table 7.

Table 13. Number of Acres Burned by Cause, by Unit

| | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|------------------------|----------------|---------------|----------------|----------------|--------------|--------------|------------|--------------|-----------|------------|------------|---------------|---------------|
| NORTHERN REGION | | | | | | | | | | | | | |
| Amador-El Dorado | 1,296 | 28 | 0 | 27 | 295 | 214 | 3 | 20 | 2 | 0 | 1 | 283 | 423 |
| Butte | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Humboldt-Del Norte | 873 | 602 | 3 | 6 | 7 | 23 | 0 | 13 | 0 | 0 | 0 | 203 | 16 |
| Lassen-Modoc | 3,018 | 1 | 1 | 4 | 0 | 5 | 5 | 5 | 0 | 380 | 0 | 2,578 | 39 |
| Mendocino | 206 | 1 | 18 | 6 | 7 | 50 | 0 | 9 | 0 | 1 | 0 | 12 | 102 |
| Nevada-Yuba-Placer | 6,368 | 13 | 4 | 16 | 9 | 63 | 0 | 425 | 2 | 0 | 3 | 5,776 | 57 |
| San Mateo-Santa Cruz | 35 | 0 | 0 | 3 | 3 | 1 | 0 | 3 | 0 | 0 | 0 | 14 | 11 |
| Santa Clara | 5,728 | 0 | 0 | 3 | 152 | 158 | 3 | 111 | 0 | 1 | 0 | 5,100 | 200 |
| Shasta-Trinity | 484 | 311 | 1 | 43 | 8 | 2 | 2 | 27 | 0 | 0 | 1 | 48 | 41 |
| Siskiyou | 844 | 0 | 2 | 9 | 713 | 2 | 8 | 1 | 29 | 28 | 0 | 31 | 21 |
| Sonoma-Lake-Napa | 11,997 | 3,990 | 0 | 8 | 27 | 140 | 0 | 1,562 | 1 | 0 | 0 | 6,241 | 28 |
| Tehama-Glenn | 1,110 | 0 | 0 | 3 | 798 | 110 | 0 | 16 | 0 | 0 | 0 | 93 | 90 |
| TOTAL | 31,960 | 4,946 | 29 | 128 | 2,019 | 768 | 21 | 2,192 | 34 | 410 | 5 | 20,380 | 1,028 |
| SOUTHERN REGION | | | | | | | | | | | | | |
| Fresno-Kings | 13,568 | 9,507 | 1 | 6 | 152 | 3 | 150 | 24 | 0 | 0 | 123 | 3,422 | 180 |
| Madera-Mariposa | 2,121 | 3 | 33 | 65 | 49 | 227 | 0 | 111 | 0 | 0 | 2 | 186 | 1,445 |
| Riverside | 2,088 | 216 | 7 | 1 | 1 | 2 | 1 | 11 | 1 | 0 | 10 | 1,835 | 3 |
| San Benito-Monterey | 136,896 | 6 | 132,127 | 3,878 | 10 | 96 | 0 | 229 | 0 | 0 | 0 | 236 | 314 |
| San Bernardino | 129 | 0 | 0 | 3 | 1 | 3 | 3 | 2 | 0 | 0 | 0 | 117 | 0 |
| San Diego | 7,963 | 7 | 2 | 4 | 12 | 22 | 5 | 33 | 0 | 0 | 1 | 7,794 | 83 |
| San Luis Obispo | 46,805 | 10 | 2 | 13 | 67 | 92 | 0 | 20 | 0 | 0 | 4 | 255 | 46,342 |
| Tulare | 229 | 72 | 0 | 2 | 62 | 28 | 0 | 1 | 0 | 0 | 0 | 54 | 10 |
| Tuolumne-Calaveras | 2,797 | 0 | 8 | 17 | 406 | 573 | 2 | 93 | 10 | 0 | 0 | 105 | 1,583 |
| TOTAL | 212,596 | 9,821 | 132,180 | 3,989 | 760 | 1,046 | 161 | 524 | 11 | 0 | 140 | 14,004 | 49,960 |
| STATE TOTAL | 244,556 | 14,767 | 132,209 | 4,117 | 2,779 | 1,814 | 182 | 2,716 | 45 | 410 | 145 | 34,384 | 50,988 |

Table 14. Number of Acres Burned by Cause, County

| COUNTY | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|--------------|---------|-------|----------|----------------|-------------|------------|-------|-------|-------|----------|---------|--------|---------|
| Alameda | 170 | 0 | 0 | 0 | 70 | 20 | 0 | 1 | 0 | 0 | 0 | 39 | 40 |
| Alpine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Amador | 383 | 3 | 0 | 8 | 2 | 41 | 3 | 18 | 0 | 0 | 0 | 260 | 48 |
| Butte | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Calaveras | 1,453 | 0 | 0 | 13 | 344 | 540 | 0 | 8 | 0 | 0 | 0 | 92 | 456 |
| Colusa | 7 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Contra Costa | 224 | 0 | 0 | 0 | 57 | 9 | 0 | 7 | 0 | 0 | 0 | 148 | 3 |
| Del Norte | 105 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 103 | 0 |
| El Dorado | 371 | 25 | 0 | 19 | 206 | 94 | 0 | 2 | 0 | 0 | 1 | 21 | 3 |
| Fresno | 13,568 | 9,507 | 1 | 6 | 152 | 3 | 150 | 24 | 0 | 0 | 123 | 3,422 | 180 |
| Glenn | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Humboldt | 768 | 601 | 3 | 6 | 7 | 22 | 0 | 13 | 0 | 0 | 0 | 100 | 16 |
| Imperial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Inyo | 110 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 109 | 0 |
| Kings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lake | 4,041 | 3,979 | 0 | 2 | 18 | 29 | 0 | 2 | 0 | 0 | 0 | 3 | 8 |
| Lassen | 2,631 | 1 | 1 | 4 | 0 | 5 | 5 | 1 | 0 | 0 | 0 | 2,577 | 37 |
| Madera | 499 | 2 | 0 | 41 | 8 | 189 | 0 | 105 | 0 | 0 | 2 | 82 | 70 |
| Mariposa | 125 | 1 | 0 | 12 | 4 | 33 | 0 | 1 | 0 | 0 | 0 | 52 | 22 |
| Mendocino | 206 | 1 | 18 | 6 | 7 | 50 | 0 | 9 | 0 | 1 | 0 | 12 | 102 |
| Merced | 1,497 | 0 | 33 | 12 | 37 | 5 | 0 | 5 | 0 | 0 | 0 | 52 | 1,353 |
| Modoc | 388 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 380 | 0 | 1 | 2 |
| Mono | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Monterey | 136,624 | 6 | 132,127 | 3,877 | 9 | 7 | 0 | 55 | 0 | 0 | 0 | 236 | 307 |
| Napa | 139 | 2 | 0 | 0 | 3 | 6 | 0 | 1 | 0 | 0 | 0 | 120 | 7 |
| Nevada | 44 | 12 | 1 | 6 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 14 | 0 |
| Placer | 5,722 | 1 | 2 | 6 | 8 | 21 | 0 | 8 | 2 | 0 | 2 | 5,669 | 3 |

Table 14. (continued) Number of Acres Burned by Cause, by County

| COUNTY | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|-----------------|---------|--------|----------|----------------|-------------|------------|-------|-------|-------|----------|---------|--------|---------|
| Plumas | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Riverside | 2,088 | 216 | 7 | 1 | 1 | 2 | 1 | 11 | 1 | 0 | 10 | 1,835 | 3 |
| Sacramento | 542 | 0 | 0 | 0 | 87 | 79 | 0 | 0 | 2 | 0 | 0 | 2 | 372 |
| San Benito | 272 | 0 | 0 | 1 | 1 | 89 | 0 | 174 | 0 | 0 | 0 | 0 | 7 |
| San Bernardino | 19 | 0 | 0 | 3 | 1 | 2 | 3 | 2 | 0 | 0 | 0 | 8 | 0 |
| San Diego | 7,963 | 7 | 2 | 4 | 12 | 22 | 5 | 33 | 0 | 0 | 1 | 7,794 | 83 |
| San Francisco | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| San Joaquin | 378 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 223 | 149 |
| San Luis Obispo | 46,805 | 10 | 2 | 13 | 67 | 92 | 0 | 20 | 0 | 0 | 4 | 255 | 46,342 |
| San Mateo | 20 | 0 | 0 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 13 | 1 |
| Santa Clara | 4,756 | 0 | 0 | 3 | 25 | 129 | 0 | 103 | 0 | 0 | 0 | 4,488 | 8 |
| Santa Cruz | 15 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 10 |
| Shasta | 480 | 311 | 1 | 42 | 7 | 2 | 2 | 27 | 0 | 0 | 1 | 47 | 40 |
| Sierra | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Siskiyou | 844 | 0 | 2 | 9 | 713 | 2 | 8 | 1 | 29 | 28 | 0 | 31 | 21 |
| Solano | 73 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 68 | 1 |
| Sonoma | 1,632 | 3 | 0 | 1 | 4 | 12 | 0 | 1,559 | 1 | 0 | 0 | 42 | 10 |
| Stanislaus | 281 | 0 | 8 | 0 | 30 | 1 | 3 | 0 | 0 | 0 | 0 | 207 | 32 |
| Sutter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tehama | 1,110 | 0 | 0 | 3 | 798 | 110 | 0 | 16 | 0 | 0 | 0 | 93 | 90 |
| Trinity | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Tulare | 229 | 72 | 0 | 2 | 62 | 28 | 0 | 1 | 0 | 0 | 0 | 54 | 10 |
| Tuolumne | 1,262 | 0 | 0 | 4 | 32 | 27 | 2 | 84 | 10 | 0 | 0 | 8 | 1,095 |
| Yolo | 6,105 | 0 | 0 | 5 | 2 | 89 | 0 | 0 | 0 | 0 | 0 | 6,008 | 1 |
| Yuba | 602 | 0 | 1 | 4 | 0 | 36 | 0 | 413 | 0 | 0 | 1 | 93 | 54 |
| STATE TOTAL | 244,556 | 14,767 | 132,209 | 4,117 | 2,779 | 1,814 | 182 | 2,716 | 45 | 410 | 145 | 34,384 | 50,988 |

Contract County statistics can be found in Table 7.

Table 15. Number of Acres Burned by Vegetation Type, by Unit

| | Total | Brush | Grass | Timber | Woodland | Other |
|------------------------|----------------|---------------|---------------|----------------|---------------|--------------|
| NORTHERN REGION | | | | | | |
| Amador-El Dorado | 1,296 | 7 | 689 | 185 | 6 | 409 |
| Butte | 1 | 0 | 0 | 1 | 0 | 0 |
| Humboldt-Del Norte | 873 | 1 | 21 | 682 | 0 | 169 |
| Lassen-Modoc | 3,018 | 15 | 3 | 2,609 | 3 | 388 |
| Mendocino | 206 | 2 | 166 | 4 | 1 | 33 |
| Nevada-Yuba-Placer | 6,368 | 10 | 677 | 5,653 | 8 | 20 |
| San Mateo-Santa Cruz | 35 | 1 | 29 | 4 | 0 | 1 |
| Santa Clara | 5,728 | 4,504 | 1,203 | 1 | 0 | 20 |
| Shasta-Trinity | 484 | 7 | 117 | 3 | 15 | 342 |
| Siskiyou | 844 | 1 | 831 | 6 | 5 | 1 |
| Sonoma-Lake-Napa | 11,997 | 72 | 4,608 | 9 | 0 | 7,308 |
| Tehama-Glenn | 1,110 | 10 | 1,097 | 3 | 0 | 0 |
| TOTAL | 31,960 | 4,630 | 9,441 | 9,160 | 38 | 8,691 |
| SOUTHERN REGION | | | | | | |
| Fresno-Kings | 13,568 | 10,160 | 3,401 | 1 | 2 | 4 |
| Madera-Mariposa | 2,121 | 1 | 1,898 | 3 | 188 | 31 |
| Riverside | 2,088 | 166 | 1,724 | 3 | 0 | 195 |
| San Benito-Monterey | 136,896 | 325 | 4,350 | 132,127 | 0 | 94 |
| San Bernardino | 129 | 111 | 10 | 3 | 1 | 4 |
| San Diego | 7,963 | 7,873 | 41 | 9 | 0 | 40 |
| San Luis Obispo | 46,805 | 103 | 431 | 1 | 46,236 | 34 |
| Tulare | 229 | 0 | 198 | 1 | 1 | 29 |
| Tuolumne-Calaveras | 2,797 | 1,465 | 1,274 | 9 | 11 | 38 |
| TOTAL | 212,596 | 20,204 | 13,327 | 132,157 | 46,439 | 469 |
| STATE TOTAL | 244,556 | 24,834 | 22,768 | 141,317 | 46,477 | 9,160 |

Table 16. Number of Acres Burned by Vegetation Type, by County

| COUNTY | Total | Brush | Grass | Timber | Woodland | Other |
|--------------|---------|--------|-------|---------|----------|-------|
| Alameda | 170 | 0 | 164 | 0 | 0 | 6 |
| Alpine | 0 | 0 | 0 | 0 | 0 | 0 |
| Amador | 383 | 0 | 118 | 6 | 1 | 258 |
| Butte | 0 | 0 | 0 | 0 | 0 | 0 |
| Calaveras | 1,453 | 372 | 1,046 | 2 | 1 | 32 |
| Colusa | 7 | 0 | 7 | 0 | 0 | 0 |
| Contra Costa | 224 | 0 | 224 | 0 | 0 | 0 |
| Del Norte | 105 | 0 | 2 | 1 | 0 | 102 |
| El Dorado | 371 | 6 | 62 | 179 | 5 | 119 |
| Fresno | 13,568 | 10,160 | 3,401 | 1 | 2 | 4 |
| Glenn | 1 | 0 | 1 | 0 | 0 | 0 |
| Humboldt | 768 | 1 | 19 | 681 | 0 | 67 |
| Imperial | 0 | 0 | 0 | 0 | 0 | 0 |
| Inyo | 110 | 107 | 3 | 0 | 0 | 0 |
| Kings | 0 | 0 | 0 | 0 | 0 | 0 |
| Lake | 4,041 | 15 | 4,002 | 2 | 0 | 22 |
| Lassen | 2,631 | 11 | 2 | 2,608 | 3 | 7 |
| Madera | 499 | 0 | 302 | 1 | 188 | 8 |
| Mariposa | 125 | 1 | 100 | 2 | 0 | 22 |
| Mendocino | 206 | 2 | 166 | 4 | 1 | 33 |
| Merced | 1,497 | 0 | 1,496 | 0 | 0 | 1 |
| Modoc | 388 | 4 | 1 | 1 | 0 | 382 |
| Mono | 0 | 0 | 0 | 0 | 0 | 0 |
| Monterey | 136,624 | 227 | 4,259 | 132,127 | 1 | 10 |
| Napa | 139 | 54 | 81 | 1 | 0 | 3 |
| Nevada | 44 | 5 | 22 | 3 | 4 | 10 |
| Placer | 5,722 | 3 | 59 | 5,649 | 2 | 9 |

Table 16. (continued) Number of Acres Burned by Vegetation Type, by County

| COUNTY | Total | Brush | Grass | Timber | Woodland | Other |
|--------------------|----------------|---------------|---------------|----------------|---------------|--------------|
| Plumas | 0 | 0 | 0 | 0 | 0 | 0 |
| Riverside | 2,088 | 166 | 1,724 | 3 | 0 | 195 |
| Sacramento | 542 | 1 | 509 | 0 | 0 | 32 |
| San Benito | 272 | 98 | 91 | 0 | 0 | 83 |
| San Bernardino | 19 | 4 | 7 | 3 | 1 | 4 |
| San Diego | 7,963 | 7,873 | 41 | 9 | 0 | 40 |
| San Francisco | 0 | 0 | 0 | 0 | 0 | 0 |
| San Joaquin | 378 | 0 | 378 | 0 | 0 | 0 |
| San Luis Obispo | 46,805 | 103 | 431 | 1 | 46,236 | 34 |
| San Mateo | 20 | 0 | 17 | 3 | 0 | 0 |
| Santa Clara | 4,756 | 4,504 | 237 | 1 | 0 | 14 |
| Santa Cruz | 15 | 1 | 12 | 1 | 0 | 1 |
| Shasta | 480 | 7 | 115 | 3 | 15 | 340 |
| Sierra | 0 | 0 | 0 | 0 | 0 | 0 |
| Siskiyou | 844 | 1 | 831 | 6 | 5 | 1 |
| Solano | 73 | 0 | 72 | 0 | 0 | 1 |
| Sonoma | 1,632 | 3 | 74 | 6 | 0 | 1,549 |
| Stanislaus | 281 | 1 | 280 | 0 | 0 | 0 |
| Sutter | 0 | 0 | 0 | 0 | 0 | 0 |
| Tehama | 1,110 | 10 | 1,096 | 4 | 0 | 0 |
| Trinity | 4 | 0 | 2 | 0 | 0 | 2 |
| Tulare | 229 | 0 | 198 | 1 | 1 | 29 |
| Tuolumne | 1,262 | 1,092 | 148 | 7 | 9 | 6 |
| Yolo | 6,105 | 0 | 372 | 0 | 0 | 5,733 |
| Yuba | 602 | 2 | 596 | 1 | 2 | 1 |
| STATE TOTAL | 244,556 | 24,834 | 22,768 | 141,317 | 46,477 | 9,160 |

Contract County statistics can be found in Table 7.

Table 17. Dollar Damage by Cause, by Unit

| | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|------------------------|----------------------|----------------------|---------------------|--------------------|--------------------|--------------------|--------------|--------------------|-----------------|----------------|------------------|---------------------|---------------------|
| NORTHERN REGION | | | | | | | | | | | | | |
| Amador-El Dorado | \$559,286 | \$850 | \$0 | \$2,550 | \$56,170 | \$81,900 | \$0 | \$232,250 | \$0 | \$0 | \$70 | \$80,201 | \$105,295 |
| Butte | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Humboldt-Del Norte | \$1,595,068 | \$347,901 | \$0 | \$0 | \$270,617 | \$705,000 | \$0 | \$61,000 | \$0 | \$0 | \$0 | \$210,550 | \$0 |
| Lassen-Modoc | \$865,304 | \$0 | \$0 | \$0 | \$0 | \$0 | \$1 | \$110,101 | \$0 | \$2 | \$0 | \$550,000 | \$205,200 |
| Mendocino | \$693,434 | \$0 | \$0 | \$500 | \$153,502 | \$101,002 | \$0 | \$5,620 | \$0 | \$0 | \$0 | \$152,788 | \$280,022 |
| Nevada-Yuba-Placer | \$1,520,141 | \$16 | \$0 | \$16,504 | \$4,252 | \$207,070 | \$0 | \$1,049,827 | \$450 | \$0 | \$171,100 | \$70,422 | \$500 |
| San Mateo-Santa Cruz | \$28,803 | \$0 | \$15,002 | \$100 | \$1,000 | \$300 | \$0 | \$200 | \$0 | \$0 | \$0 | \$201 | \$12,000 |
| Santa Clara | \$321,468 | \$0 | \$0 | \$3,500 | \$61,550 | \$3,400 | \$0 | \$200 | \$0 | \$0 | \$0 | \$241,798 | \$11,020 |
| Shasta-Trinity | \$215,711 | \$52,000 | \$0 | \$12,211 | \$0 | \$100,500 | \$0 | \$40,000 | \$0 | \$0 | \$0 | \$700 | \$10,300 |
| Siskiyou | \$295,712 | \$200 | \$0 | \$500 | \$286,411 | \$501 | \$0 | \$1,500 | \$500 | \$1,300 | \$0 | \$4,800 | \$0 |
| Sonoma-Lake-Napa | \$111,549,257 | \$105,260,000 | \$0 | \$1,600 | \$4,620 | \$151,704 | \$0 | \$258,730 | \$0 | \$0 | \$0 | \$5,628,903 | \$243,700 |
| Tehama-Glenn | \$434,250 | \$0 | \$0 | \$200 | \$371,000 | \$7,850 | \$0 | \$200 | \$0 | \$0 | \$0 | \$34,000 | \$21,000 |
| TOTAL | \$118,078,434 | \$105,660,967 | \$15,002 | \$37,665 | \$1,209,122 | \$1,359,227 | \$1 | \$1,759,628 | \$950 | \$1,302 | \$171,170 | \$6,974,363 | \$889,037 |
| SOUTHERN REGION | | | | | | | | | | | | | |
| Fresno-Kings | \$812,917 | \$758,025 | \$0 | \$2,020 | \$3,656 | \$0 | \$0 | \$1 | \$0 | \$0 | \$25,000 | \$17,200 | \$7,015 |
| Madera-Mariposa | \$525,835 | \$10,600 | \$0 | \$269,660 | \$151,525 | \$26,000 | \$0 | \$1,100 | \$0 | \$0 | \$0 | \$47,450 | \$19,500 |
| Riverside | \$3,620 | \$0 | \$0 | \$0 | \$0 | \$600 | \$0 | \$1,020 | \$0 | \$0 | \$0 | \$2,000 | \$0 |
| San Benito-Monterey | \$11,251,885 | \$1,000 | \$10,345,582 | \$777,200 | \$8,101 | \$900 | \$0 | \$23,700 | \$0 | \$0 | \$0 | \$84,400 | \$11,002 |
| San Bernardino | \$629,595 | \$0 | \$0 | \$200 | \$20,000 | \$0 | \$0 | \$604,045 | \$0 | \$0 | \$0 | \$5,350 | \$0 |
| San Diego | \$4,286,760 | \$0 | \$0 | \$0 | \$0 | \$15,210 | \$0 | \$23,700 | \$0 | \$0 | \$0 | \$3,833,850 | \$414,000 |
| San Luis Obispo | \$12,215,711 | \$700 | \$0 | \$0 | \$23,460 | \$21,300 | \$0 | \$0 | \$0 | \$0 | \$200 | \$7,300 | \$12,162,751 |
| Tulare | \$8,664 | \$0 | \$2 | \$0 | \$4,000 | \$1,750 | \$500 | \$0 | \$0 | \$0 | \$0 | \$2 | \$2,410 |
| Tuolumne-Calaveras | \$453,472 | \$0 | \$1,600 | \$1,871 | \$10,002 | \$291,400 | \$0 | \$1,077 | \$20,750 | \$0 | \$20 | \$31,946 | \$94,806 |
| TOTAL | \$30,188,459 | \$770,325 | \$10,347,184 | \$1,050,951 | \$220,744 | \$357,160 | \$500 | \$654,643 | \$20,750 | \$0 | \$25,220 | \$4,029,498 | \$12,711,484 |
| STATE TOTAL | \$148,266,893 | \$106,431,292 | \$10,362,186 | \$1,088,616 | \$1,429,866 | \$1,716,387 | \$501 | \$2,414,271 | \$21,700 | \$1,302 | \$196,390 | \$11,003,861 | \$13,600,521 |

Table 18. Dollar Damage by Cause, by County

| COUNTY | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|--------------|---------------|---------------|--------------|----------------|-------------|------------|-------|-------------|-------|----------|----------|-----------|-----------|
| Alameda | \$32,410 | \$0 | \$0 | \$0 | \$11,300 | \$1,200 | \$0 | \$0 | \$0 | \$0 | \$0 | \$9,910 | \$10,000 |
| Alpine | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Amador | \$307,070 | \$0 | \$0 | \$0 | \$6,000 | \$700 | \$0 | \$200,000 | \$0 | \$0 | \$70 | \$20,000 | \$80,300 |
| Butte | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Calaveras | \$405,009 | \$0 | \$0 | \$1,270 | \$1,400 | \$286,300 | \$0 | \$1,077 | \$0 | \$0 | \$20 | \$24,786 | \$90,156 |
| Colusa | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Contra Costa | \$11,450 | \$0 | \$0 | \$0 | \$250 | \$1,700 | \$0 | \$0 | \$0 | \$0 | \$0 | \$9,500 | \$0 |
| Del Norte | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| El Dorado | \$231,015 | \$850 | \$0 | \$2,550 | \$50,170 | \$80,000 | \$0 | \$32,250 | \$0 | \$0 | \$0 | \$60,200 | \$4,995 |
| Fresno | \$812,917 | \$758,025 | \$0 | \$2,020 | \$3,656 | \$0 | \$0 | \$1 | \$0 | \$0 | \$25,000 | \$17,200 | \$7,015 |
| Glenn | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Humboldt | \$1,595,068 | \$347,901 | \$0 | \$0 | \$270,617 | \$705,000 | \$0 | \$61,000 | \$0 | \$0 | \$0 | \$210,550 | \$0 |
| Imperial | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Inyo | \$350 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$350 | \$0 |
| Kings | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Lake | \$105,579,028 | \$105,260,000 | \$0 | \$0 | \$3,300 | \$150,000 | \$0 | \$142,728 | \$0 | \$0 | \$0 | \$23,000 | \$0 |
| Lassen | \$715,300 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$110,100 | \$0 | \$0 | \$0 | \$400,000 | \$205,200 |
| Madera | \$299,925 | \$10,600 | \$0 | \$268,350 | \$1,525 | \$15,000 | \$0 | \$100 | \$0 | \$0 | \$0 | \$1,450 | \$2,900 |
| Mariposa | \$48,410 | \$0 | \$0 | \$310 | \$0 | \$1,000 | \$0 | \$1,000 | \$0 | \$0 | \$0 | \$44,100 | \$2,000 |
| Mendocino | \$693,434 | \$0 | \$0 | \$500 | \$153,502 | \$101,002 | \$0 | \$5,620 | \$0 | \$0 | \$0 | \$152,788 | \$280,022 |
| Merced | \$177,500 | \$0 | \$0 | \$1,000 | \$150,000 | \$10,000 | \$0 | \$0 | \$0 | \$0 | \$0 | \$1,900 | \$14,600 |
| Modoc | \$150,004 | \$0 | \$0 | \$0 | \$0 | \$0 | \$1 | \$1 | \$0 | \$2 | \$0 | \$150,000 | \$0 |
| Mono | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Monterey | \$11,222,283 | \$1,000 | \$10,345,582 | \$776,200 | \$101 | \$800 | \$0 | \$3,200 | \$0 | \$0 | \$0 | \$84,400 | \$11,000 |
| Napa | \$300,120 | \$0 | \$0 | \$0 | \$120 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$100,000 | \$200,000 |
| Nevada | \$1,080,921 | \$16 | \$0 | \$300 | \$2,002 | \$70 | \$0 | \$1,049,627 | \$100 | \$0 | \$0 | \$28,306 | \$500 |
| Placer | \$242,200 | \$0 | \$0 | \$16,200 | \$2,250 | \$207,000 | \$0 | \$200 | \$350 | \$0 | \$100 | \$16,100 | \$0 |

Table 18. (continued) Dollar Damage by Cause, by County

| COUNTY | Total | Arson | Campfire | Debris Burning | Elec. Power | Equip. Use | Ltng. | Misc. | P-W-F | Railroad | Smoking | Undet. | Vehicle |
|-----------------|---------------|---------------|--------------|----------------|-------------|-------------|-------|-------------|----------|----------|-----------|--------------|--------------|
| Plumas | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Riverside | \$3,620 | \$0 | \$0 | \$0 | \$0 | \$600 | \$0 | \$1,020 | \$0 | \$0 | \$0 | \$2,000 | \$0 |
| Sacramento | \$21,201 | \$0 | \$0 | \$0 | \$0 | \$1,200 | \$0 | \$0 | \$0 | \$0 | \$0 | \$1 | \$20,000 |
| San Benito | \$29,602 | \$0 | \$0 | \$1,000 | \$8,000 | \$100 | \$0 | \$20,500 | \$0 | \$0 | \$0 | \$0 | \$2 |
| San Bernardino | \$629,245 | \$0 | \$0 | \$200 | \$20,000 | \$0 | \$0 | \$604,045 | \$0 | \$0 | \$0 | \$5,000 | \$0 |
| San Diego | \$4,286,760 | \$0 | \$0 | \$0 | \$0 | \$15,210 | \$0 | \$23,700 | \$0 | \$0 | \$0 | \$3,833,850 | \$414,000 |
| San Francisco | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| San Joaquin | \$1,936 | \$0 | \$0 | \$0 | \$0 | \$900 | \$0 | \$0 | \$0 | \$0 | \$0 | \$1,036 | \$0 |
| San Luis Obispo | \$12,215,711 | \$700 | \$0 | \$0 | \$23,460 | \$21,300 | \$0 | \$0 | \$0 | \$0 | \$200 | \$7,300 | \$12,162,751 |
| San Mateo | \$20,200 | \$0 | \$15,000 | \$0 | \$0 | \$0 | \$0 | \$200 | \$0 | \$0 | \$0 | \$0 | \$5,000 |
| Santa Clara | \$275,222 | \$0 | \$0 | \$3,500 | \$50,000 | \$500 | \$0 | \$200 | \$0 | \$0 | \$0 | \$220,002 | \$1,020 |
| Santa Cruz | \$8,603 | \$0 | \$2 | \$100 | \$1,000 | \$300 | \$0 | \$0 | \$0 | \$0 | \$0 | \$201 | \$7,000 |
| Shasta | \$215,711 | \$52,000 | \$0 | \$12,211 | \$0 | \$100,500 | \$0 | \$40,000 | \$0 | \$0 | \$0 | \$700 | \$10,300 |
| Sierra | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Siskiyou | \$295,712 | \$200 | \$0 | \$500 | \$286,411 | \$501 | \$0 | \$1,500 | \$500 | \$1,300 | \$0 | \$4,800 | \$0 |
| Solano | \$3,103 | \$0 | \$0 | \$0 | \$100 | \$1,002 | \$0 | \$0 | \$0 | \$0 | \$0 | \$2,001 | \$0 |
| Sonoma | \$665,106 | \$0 | \$0 | \$0 | \$1,000 | \$502 | \$0 | \$116,002 | \$0 | \$0 | \$0 | \$503,902 | \$43,700 |
| Stanislaus | \$8,550 | \$0 | \$1,600 | \$0 | \$4,500 | \$100 | \$0 | \$0 | \$0 | \$0 | \$0 | \$2,250 | \$100 |
| Sutter | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Tehama | \$434,250 | \$0 | \$0 | \$200 | \$371,000 | \$7,850 | \$0 | \$200 | \$0 | \$0 | \$0 | \$34,000 | \$21,000 |
| Trinity | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Tulare | \$8,664 | \$0 | \$2 | \$0 | \$4,000 | \$1,750 | \$500 | \$0 | \$0 | \$0 | \$0 | \$2 | \$2,410 |
| Tuolumne | \$40,363 | \$0 | \$0 | \$601 | \$4,102 | \$4,100 | \$0 | \$0 | \$20,750 | \$0 | \$0 | \$6,260 | \$4,550 |
| Yolo | \$5,001,900 | \$0 | \$0 | \$1,600 | \$100 | \$200 | \$0 | \$0 | \$0 | \$0 | \$0 | \$5,000,000 | \$0 |
| Yuba | \$197,020 | \$0 | \$0 | \$4 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$171,000 | \$26,016 | \$0 |
| STATE TOTAL | \$148,266,893 | \$106,431,292 | \$10,362,186 | \$1,088,616 | \$1,429,866 | \$1,716,387 | \$501 | \$2,414,271 | \$21,700 | \$1,302 | \$196,390 | \$11,003,861 | \$13,600,521 |

Contract County statistics can be found in Table 7.

Table 19. Dollar Damage by Size, by Unit

| | | A | | C | | E | F | G |
|------------------------|----------------------|--------------------|--------------------|--------------------|------------------|--------------------|----------------------|---------------------|
| | Total | .25 acres or < | .26-9.99 acres | 10-99 acres | 100-299 acres | 300-999 acres | 1000-4999 acres | 5000 acres > |
| NORTHERN REGION | | | | | | | | |
| Amador-El Dorado | \$559,286 | \$19,735 | \$499,551 | \$0 | \$20,000 | \$20,000 | \$0 | \$0 |
| Butte | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Humboldt-Del Norte | \$1,595,068 | \$13,550 | \$318,617 | \$915,000 | \$0 | \$347,901 | \$0 | \$0 |
| Lassen-Modoc | \$865,304 | \$200,302 | \$260,000 | \$5,000 | \$0 | \$2 | \$400,000 | \$0 |
| Mendocino | \$693,434 | \$180,746 | \$252,688 | \$260,000 | \$0 | \$0 | \$0 | \$0 |
| Nevada-Yuba-Placer | \$1,520,141 | \$648,112 | \$869,029 | \$3,000 | \$0 | \$0 | \$0 | \$0 |
| San Mateo-Santa Cruz | \$28,803 | \$21,803 | \$7,000 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Santa Clara | \$321,468 | \$3,750 | \$17,622 | \$78,460 | \$1,636 | \$0 | \$220,000 | \$0 |
| Shasta-Trinity | \$215,711 | \$112,500 | \$48,701 | \$2,510 | \$0 | \$52,000 | \$0 | \$0 |
| Siskiyou | \$295,712 | \$5,801 | \$1,900 | \$1,800 | \$0 | \$286,211 | \$0 | \$0 |
| Sonoma-Lake-Napa | \$111,549,257 | \$295,048 | \$742,209 | \$512,000 | \$0 | \$0 | \$105,000,000 | \$5,000,000 |
| Tehama-Glenn | \$434,250 | \$7,950 | \$407,800 | \$13,500 | \$0 | \$5,000 | \$0 | \$0 |
| TOTAL | \$118,078,434 | \$1,509,297 | \$3,425,117 | \$1,791,270 | \$21,636 | \$711,114 | \$105,620,000 | \$5,000,000 |
| SOUTHERN REGION | | | | | | | | |
| Fresno-Kings | \$812,917 | \$135 | \$10,201 | \$2,000 | \$36,556 | \$0 | \$185,275 | \$578,750 |
| Madera-Mariposa | \$525,835 | \$13,360 | \$58,175 | \$449,300 | \$0 | \$0 | \$5,000 | \$0 |
| Riverside | \$3,620 | \$2,000 | \$620 | \$0 | \$1,000 | \$0 | \$0 | \$0 |
| San Benito-Monterey | \$11,251,885 | \$6,401 | \$40,702 | \$1,000 | \$83,000 | \$0 | \$775,200 | \$10,345,582 |
| San Bernardino | \$629,595 | \$624,045 | \$5,550 | \$0 | \$0 | \$0 | \$0 | \$0 |
| San Diego | \$4,286,760 | \$178,210 | \$285,700 | \$4,500 | \$0 | \$0 | \$0 | \$3,818,350 |
| San Luis Obispo | \$12,215,711 | \$3,100 | \$54,560 | \$3,000 | \$2,500 | \$0 | \$0 | \$12,152,551 |
| Tulare | \$8,664 | \$502 | \$2,662 | \$5,500 | \$0 | \$0 | \$0 | \$0 |
| Tuolumne-Calaveras | \$453,472 | \$10,322 | \$37,650 | \$65,500 | \$0 | \$340,000 | \$0 | \$0 |
| TOTAL | \$30,188,459 | \$838,075 | \$495,820 | \$530,800 | \$123,056 | \$340,000 | \$965,475 | \$26,895,233 |
| STATE TOTAL | \$148,266,893 | \$2,347,372 | \$3,920,937 | \$2,322,070 | \$144,692 | \$1,051,114 | \$106,585,475 | \$31,895,233 |

Table 20. Dollar Damage by Size, by County

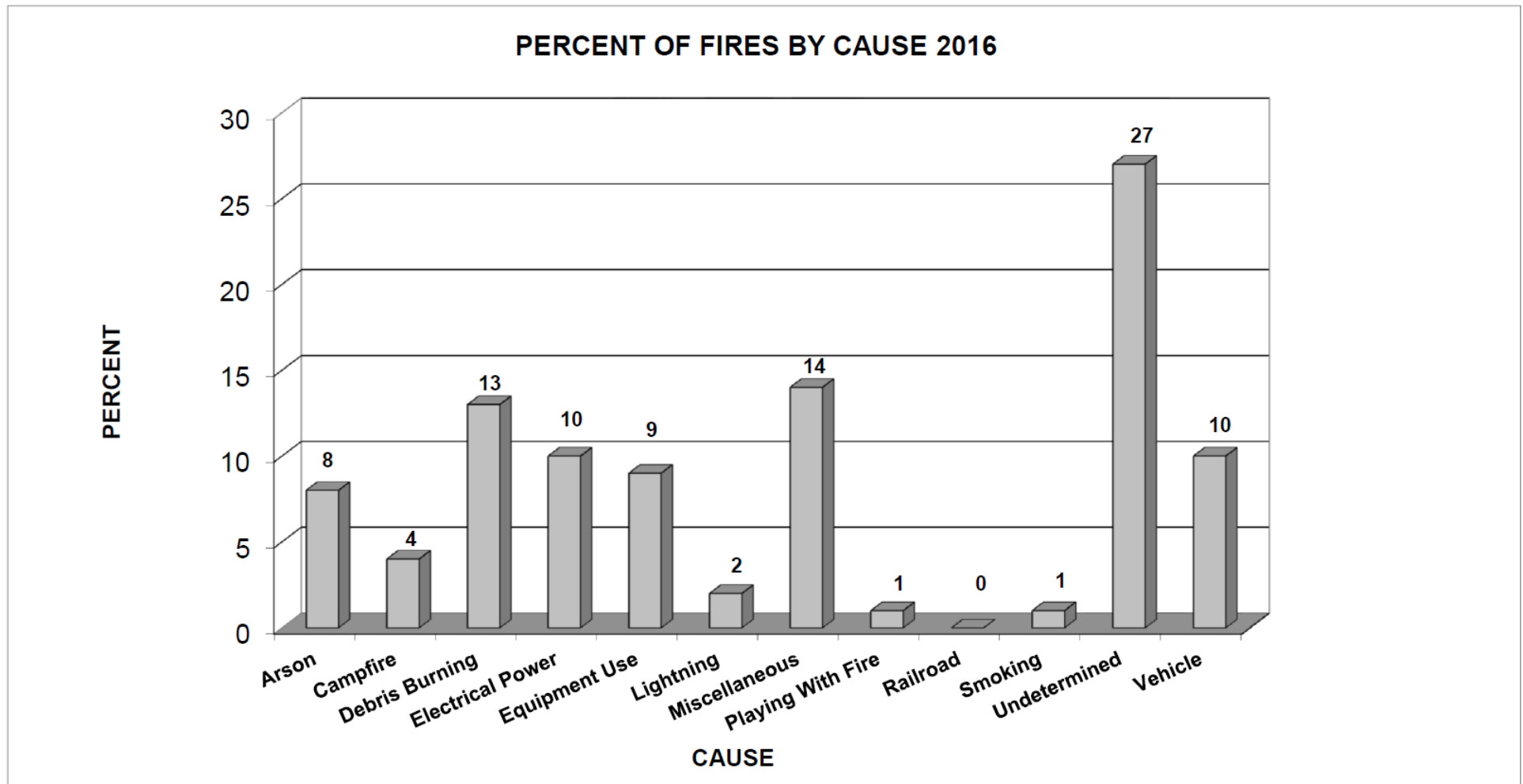
| | | A | B | C | D | E | F | G |
|--------------|---------------|----------------|----------------|-------------|---------------|---------------|-----------------|--------------|
| COUNTY | Total | .25 acres or < | .26-9.99 acres | 10-99 acres | 100-299 acres | 300-999 acres | 1000-4999 acres | 5000 acres > |
| Alameda | \$32,410 | \$0 | \$14,700 | \$17,710 | \$0 | \$0 | \$0 | \$0 |
| Alpine | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Amador | \$307,070 | \$6,070 | \$281,000 | \$0 | \$20,000 | \$0 | \$0 | \$0 |
| Butte | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Calaveras | \$405,009 | \$2,761 | \$5,248 | \$57,000 | \$0 | \$340,000 | \$0 | \$0 |
| Colusa | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Contra Costa | \$11,450 | \$50 | \$1,900 | \$9,500 | \$0 | \$0 | \$0 | \$0 |
| Del Norte | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| El Dorado | \$231,015 | \$13,665 | \$217,350 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Fresno | \$812,917 | \$135 | \$10,201 | \$2,000 | \$36,556 | \$0 | \$185,275 | \$578,750 |
| Glenn | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Humboldt | \$1,595,068 | \$13,550 | \$318,617 | \$915,000 | \$0 | \$347,901 | \$0 | \$0 |
| Imperial | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Inyo | \$350 | \$0 | \$350 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Kings | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Lake | \$105,579,028 | \$168,728 | \$300 | \$410,000 | \$0 | \$0 | \$105,000,000 | \$0 |
| Lassen | \$715,300 | \$200,300 | \$110,000 | \$5,000 | \$0 | \$0 | \$400,000 | \$0 |
| Madera | \$299,925 | \$10,850 | \$4,775 | \$284,300 | \$0 | \$0 | \$0 | \$0 |
| Mariposa | \$48,410 | \$1,310 | \$43,200 | \$3,900 | \$0 | \$0 | \$0 | \$0 |
| Mendocino | \$693,434 | \$180,746 | \$252,688 | \$260,000 | \$0 | \$0 | \$0 | \$0 |
| Merced | \$177,500 | \$1,200 | \$10,200 | \$161,100 | \$0 | \$0 | \$5,000 | \$0 |
| Modoc | \$150,004 | \$2 | \$150,000 | \$0 | \$0 | \$2 | \$0 | \$0 |
| Mono | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Monterey | \$11,222,283 | \$6,401 | \$11,600 | \$500 | \$83,000 | \$0 | \$775,200 | \$10,345,582 |
| Napa | \$300,120 | \$120 | \$200,000 | \$100,000 | \$0 | \$0 | \$0 | \$0 |
| Nevada | \$1,080,921 | \$603,762 | \$477,159 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Placer | \$242,200 | \$27,350 | \$214,850 | \$0 | \$0 | \$0 | \$0 | \$0 |

Table 20. (continued) Dollar Damage by Size, by County

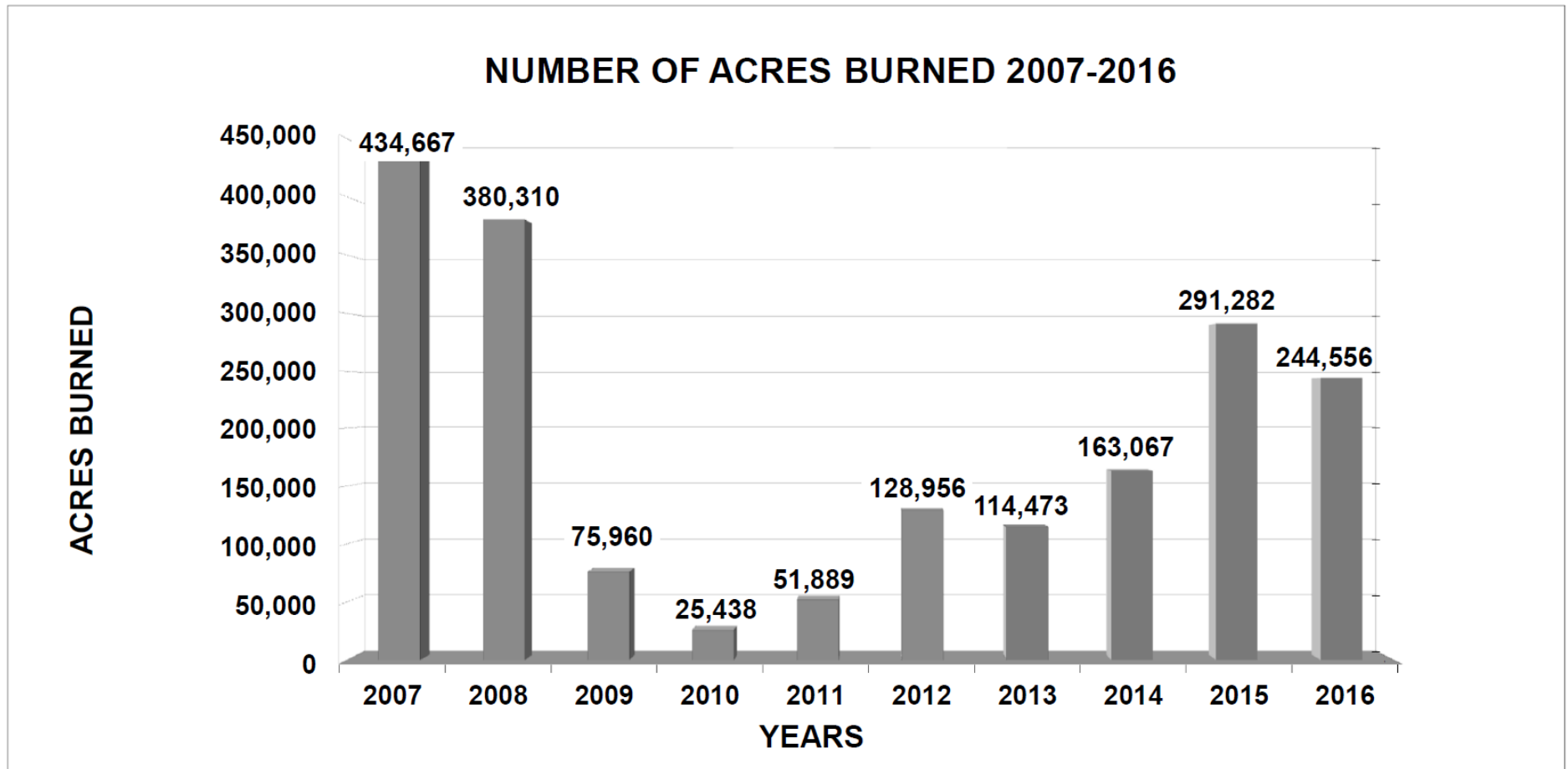
| | | A | B | C | D | E | F | G |
|-----------------|---------------|----------------|----------------|-------------|---------------|---------------|-----------------|--------------|
| COUNTY | Total | .25 acres or < | .26-9.99 acres | 10-99 acres | 100-299 acres | 300-999 acres | 1000-4999 acres | 5000 acres > |
| Plumas | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Riverside | \$3,620 | \$2,000 | \$620 | \$0 | \$1,000 | \$0 | \$0 | \$0 |
| Sacramento | \$21,201 | \$0 | \$1,201 | \$0 | \$0 | \$20,000 | \$0 | \$0 |
| San Benito | \$29,602 | \$0 | \$29,102 | \$500 | \$0 | \$0 | \$0 | \$0 |
| San Bernardino | \$629,245 | \$624,045 | \$5,200 | \$0 | \$0 | \$0 | \$0 | \$0 |
| San Diego | \$4,286,760 | \$178,210 | \$285,700 | \$4,500 | \$0 | \$0 | \$0 | \$3,818,350 |
| San Francisco | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| San Joaquin | \$1,936 | \$0 | \$1,800 | \$0 | \$136 | \$0 | \$0 | \$0 |
| San Luis Obispo | \$12,215,711 | \$3,100 | \$54,560 | \$3,000 | \$2,500 | \$0 | \$0 | \$12,152,551 |
| San Mateo | \$20,200 | \$15,200 | \$5,000 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Santa Clara | \$275,222 | \$3,700 | \$1,022 | \$50,000 | \$500 | \$0 | \$220,000 | \$0 |
| Santa Cruz | \$8,603 | \$6,603 | \$2,000 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Shasta | \$215,711 | \$112,500 | \$48,701 | \$2,510 | \$0 | \$52,000 | \$0 | \$0 |
| Sierra | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Siskiyou | \$295,712 | \$5,801 | \$1,900 | \$1,800 | \$0 | \$286,211 | \$0 | \$0 |
| Solano | \$3,103 | \$100 | \$1,003 | \$2,000 | \$0 | \$0 | \$0 | \$0 |
| Sonoma | \$665,106 | \$126,100 | \$539,006 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Stanislaus | \$8,550 | \$100 | \$1,700 | \$5,750 | \$1,000 | \$0 | \$0 | \$0 |
| Sutter | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Tehama | \$434,250 | \$7,950 | \$407,800 | \$13,500 | \$0 | \$5,000 | \$0 | \$0 |
| Trinity | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Tulare | \$8,664 | \$502 | \$2,662 | \$5,500 | \$0 | \$0 | \$0 | \$0 |
| Tuolumne | \$40,363 | \$7,461 | \$28,902 | \$4,000 | \$0 | \$0 | \$0 | \$0 |
| Yolo | \$5,001,900 | \$0 | \$1,900 | \$0 | \$0 | \$0 | \$0 | \$5,000,000 |
| Yuba | \$197,020 | \$17,000 | \$177,020 | \$3,000 | \$0 | \$0 | \$0 | \$0 |
| STATE TOTAL | \$148,266,893 | \$2,347,372 | \$3,920,937 | \$2,322,070 | \$144,692 | \$1,051,114 | \$106,585,475 | \$31,895,233 |

Contract County statistics can be found in Table 7.

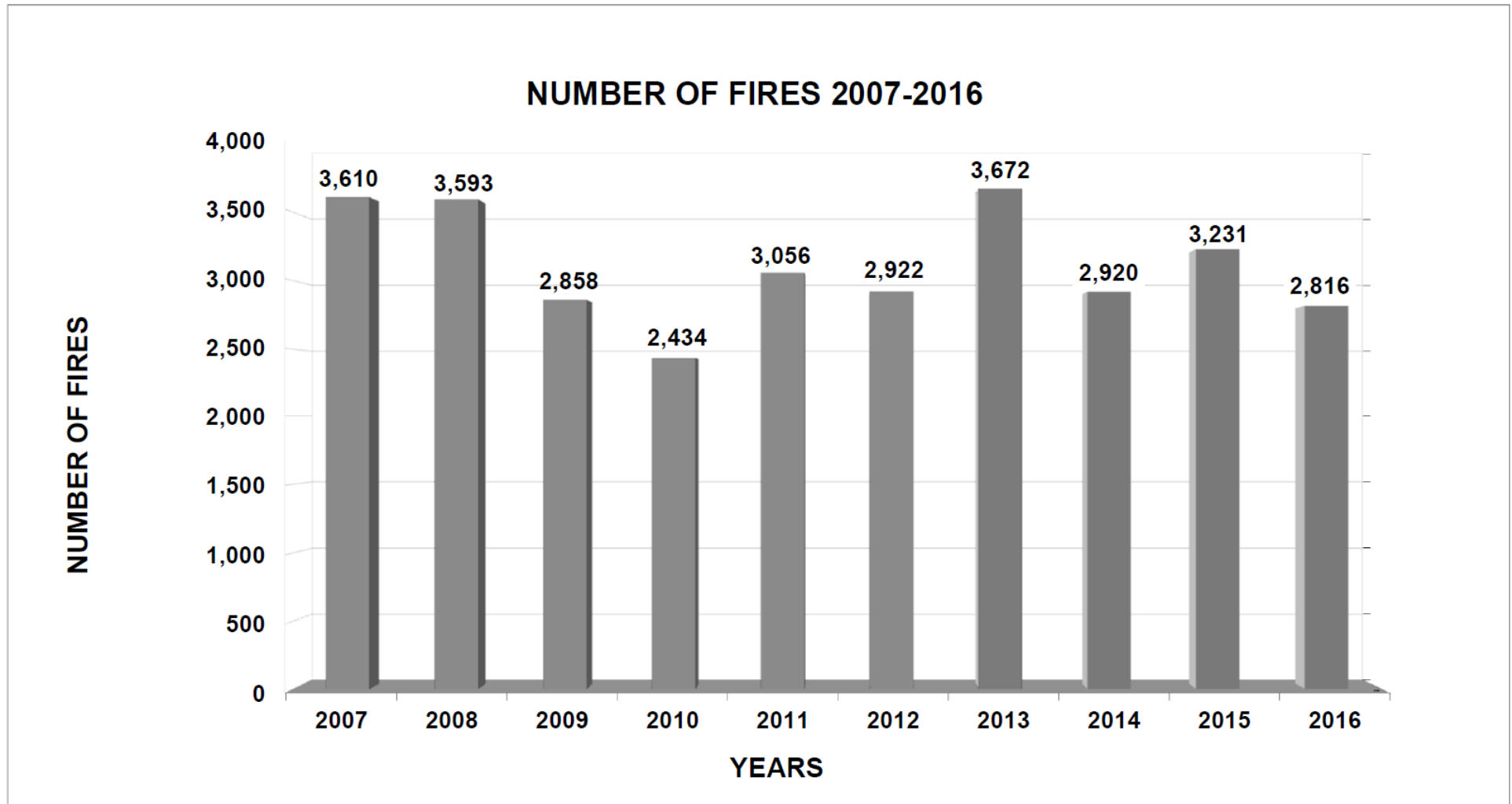
Graphic Figure 1. Percent of Fires by Cause



Graphic Figure 2. Number of Acres Burned — 2007-2016

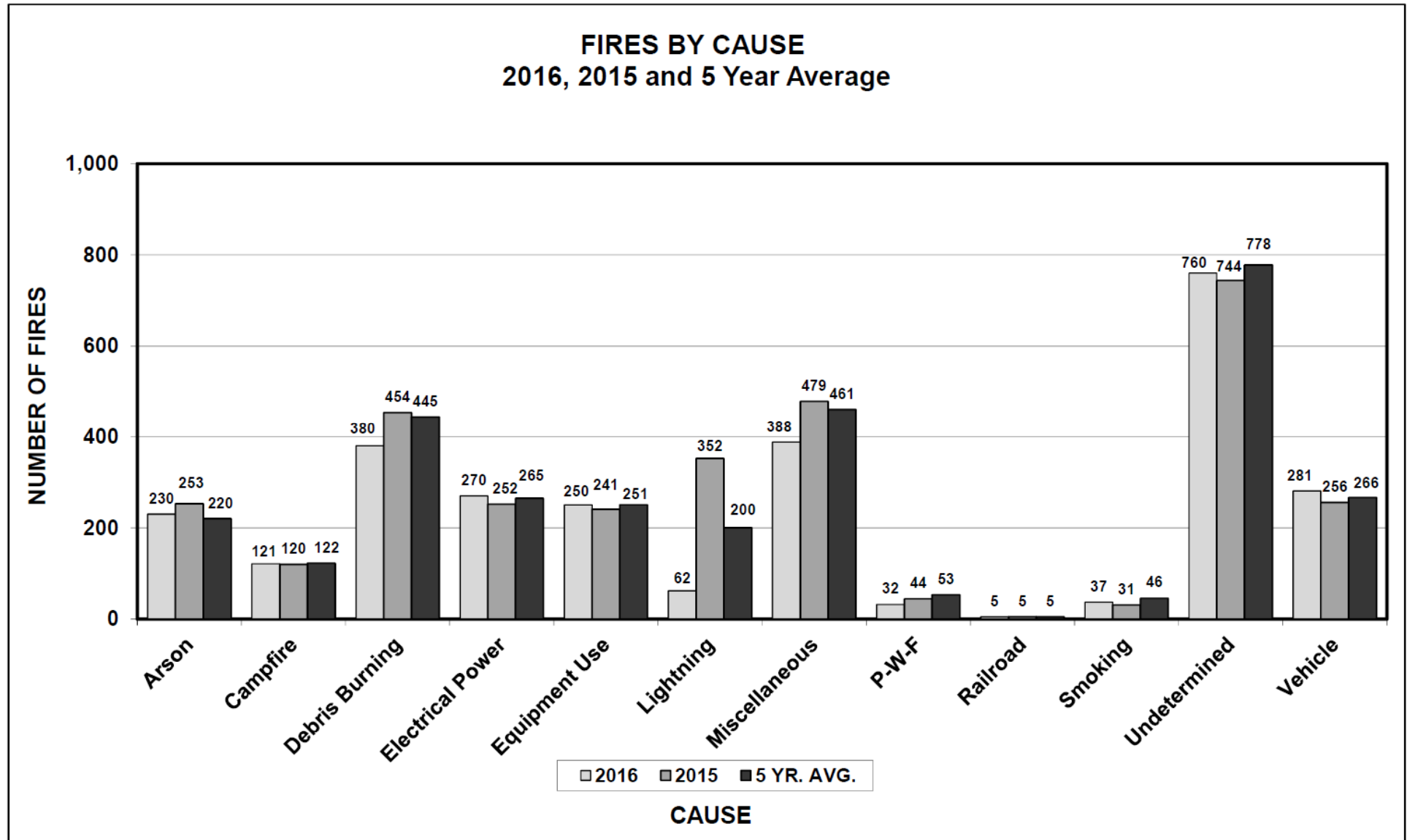


1981 - 2007 Statistics include all fire types from the Emergency Activity Reporting System (EARS) database. 2007 to present statistics include only wildland fire types from the California All Incident Reporting System (CAIRS) database.

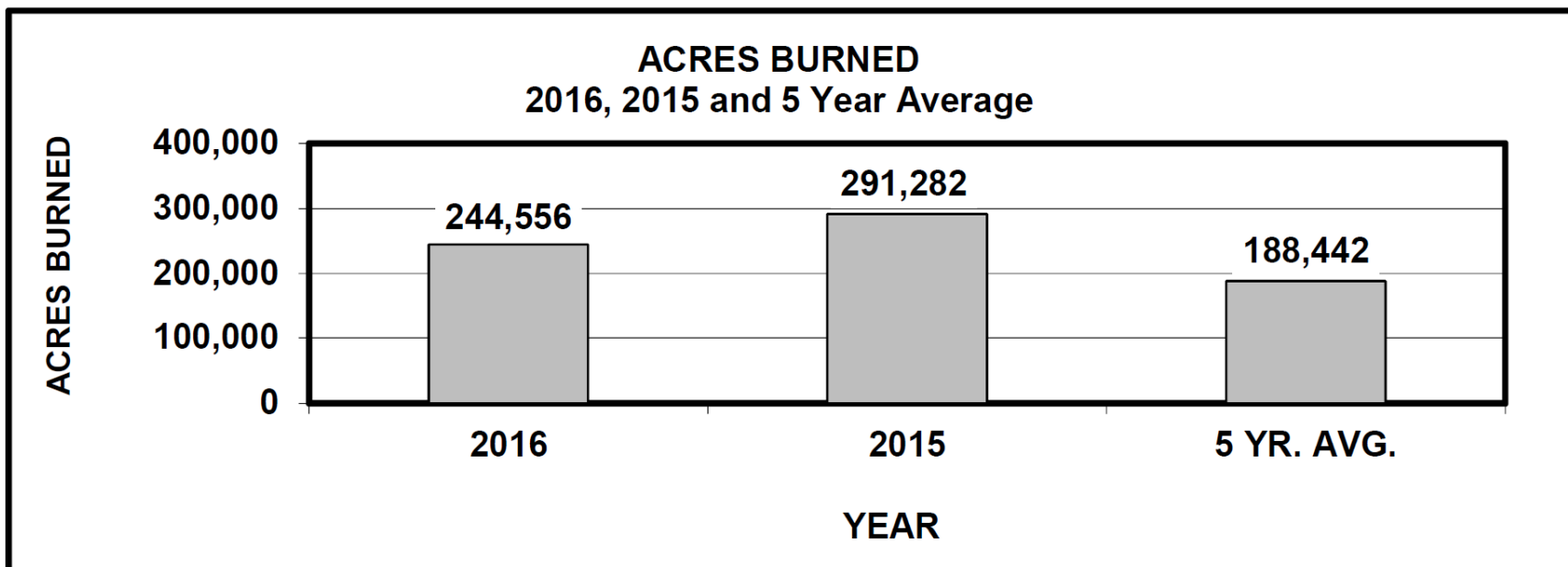
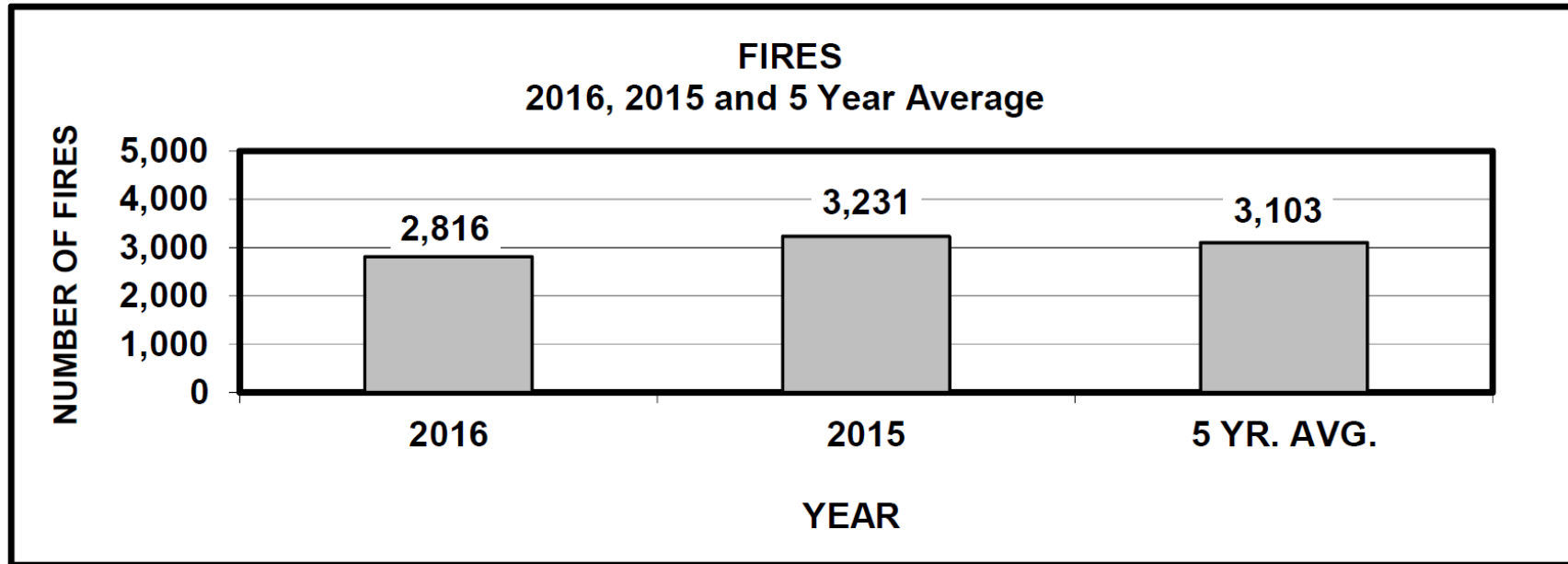
Graphic Figure 3. Number of Fires — 2007-2016

1981 - 2007 Statistics include all fire types from the Emergency Activity Reporting System (EARS) database. 2007 to present statistics include only wildland fire types from the California All Incident Reporting System (CAIRS) database.

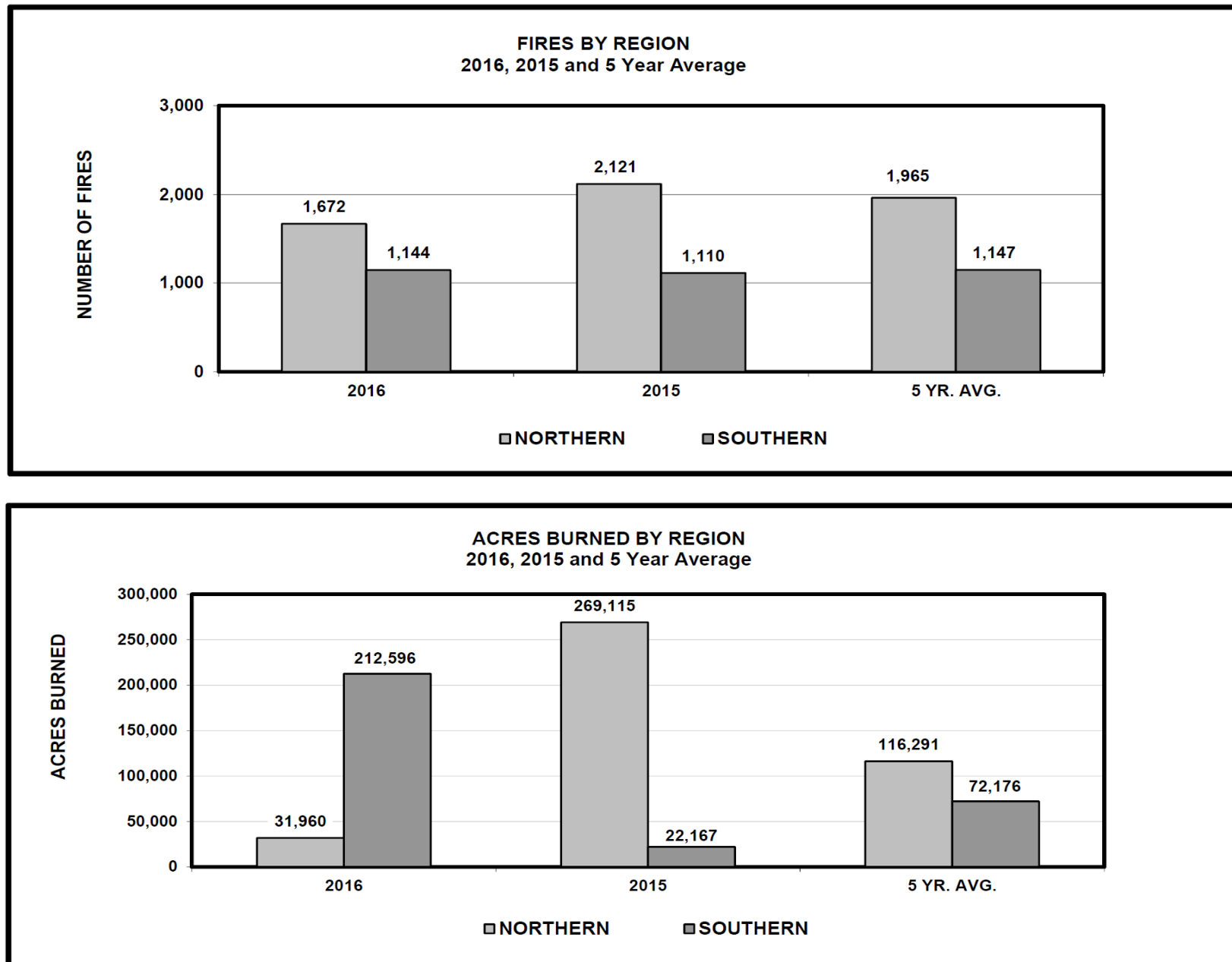
Graphic Figure 4. Number of Fires by Cause — 2016, 2015 and 5 Year Average



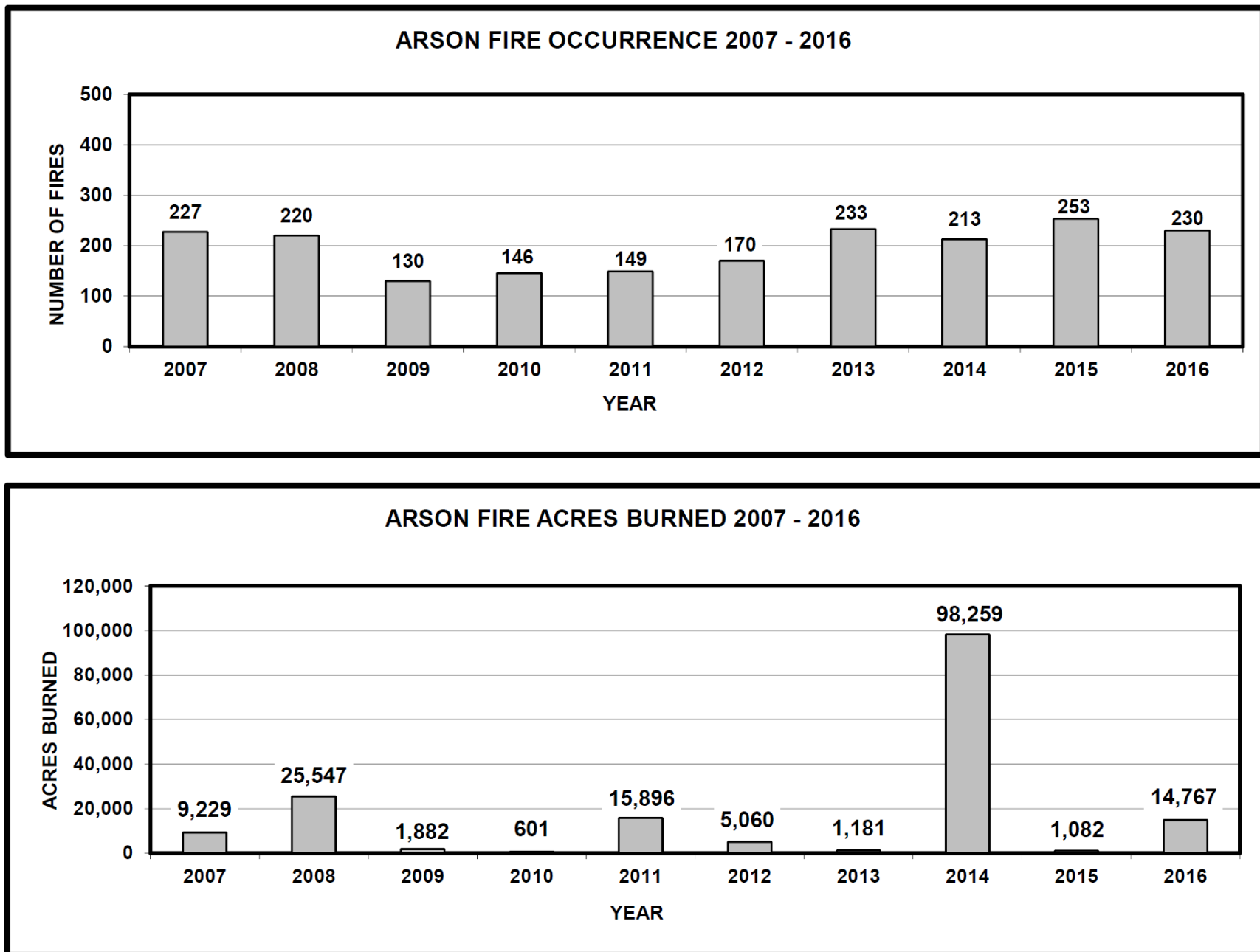
Graphic Figure 5. Fires and Acres — 2016, 2015 and 5 Year Average



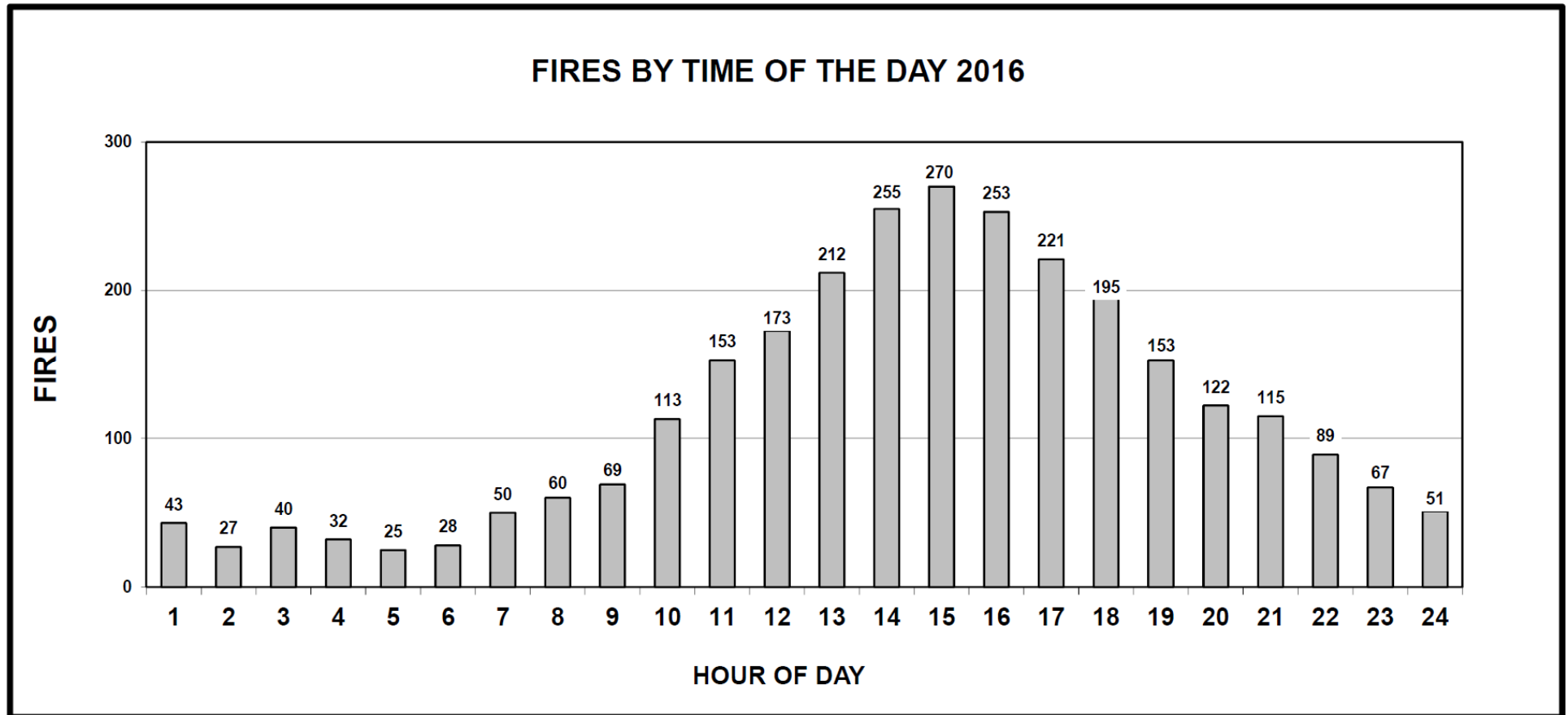
Graphic Figure 6. Fires and Acres by Region — 2016, 2015 and 5 Year Average



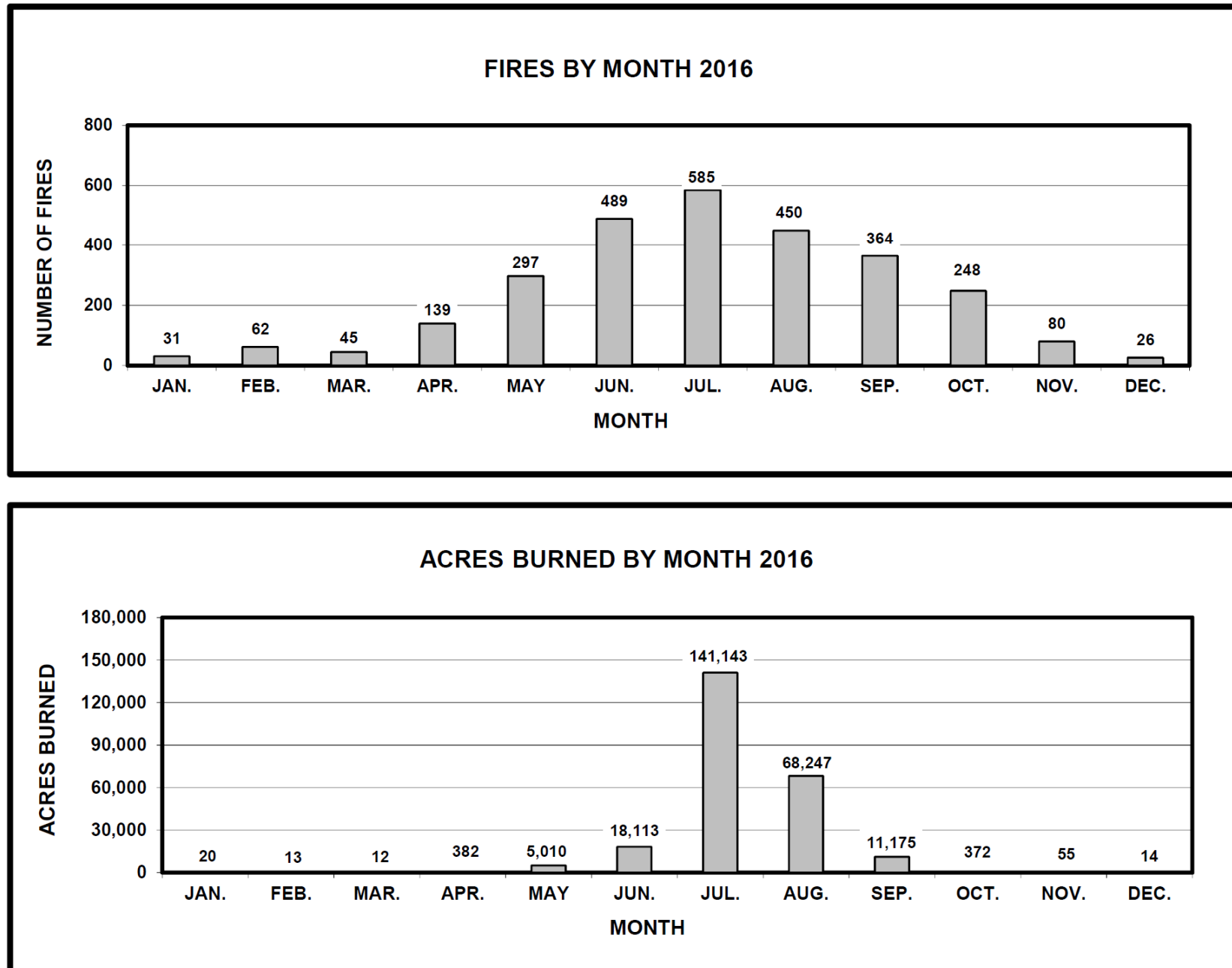
Graphic Figure 7. Number of Arson Fires and Acres — 2007-2016

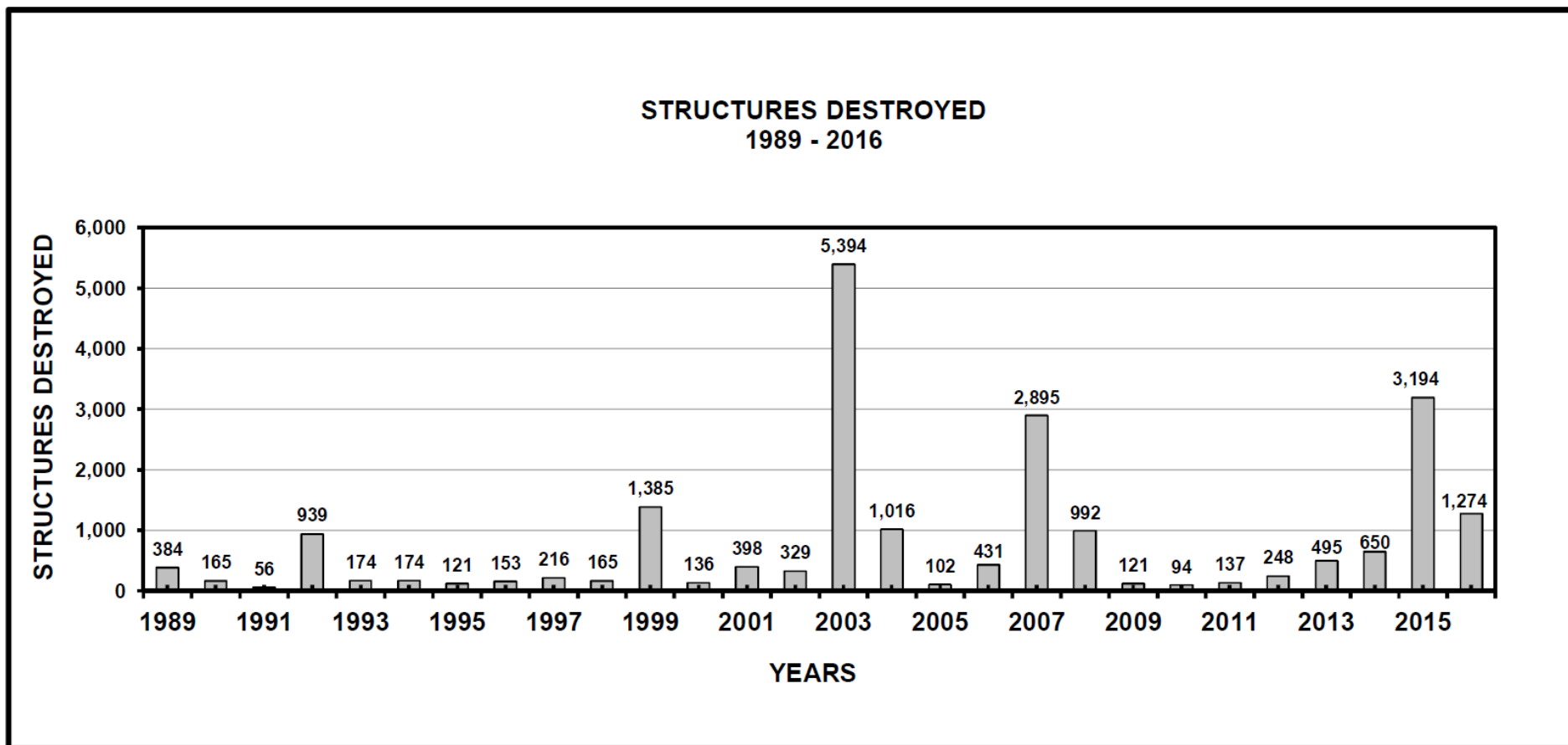


Graphic Figure 8. Number of Fires by Time of the Day



Graphic Figure 9. Number of Fires and Acres Burned by Month



Graphic Figure 10. Structures Destroyed — 1989-2016

The information on this list is gathered from the ICS 209 incident reports and includes information on fire activity within the Direct Protection Areas of CAL FIRE and Contract Counties.

Structures Destroyed = Residence, commercial property, outbuilding or other structure that is declared lost.

1992 includes the Fountain and Old Gulch Fires.

2003 includes the Cedar Fire, which destroyed 4,847 structures.

2015 includes the Valley Fire, which destroyed 1,958 structures, and the Butte Fire, which destroyed 965 structures.

2016 includes the Erskine Fire, which destroyed 286 structures, the Bluecut Fire, which destroyed 321 structures, the Sand Fire, which destroyed 116 structures, and the Clayton Fire, which destroyed 300 structures.

GLOSSARY

ARSON – To unlawfully and intentionally damage, or attempt to damage, any real or personal property by fire or incendiary device.

CAMPFIRE – Outside fire used for cooking, warmth, lighting, ceremonial or aesthetic purposes.

CONTRACT COUNTIES – PRC §4133 and Section 55607 of the Government Code permit the CAL FIRE Director to contract with counties for protection of State Responsibility Area (SRA). In California, CAL FIRE contracts with six counties to provide fire-protection and prevention services in SRA. The counties of Kern, Los Angeles, Marin, Orange, Santa Barbara and Ventura are contract counties.

DEBRIS BURNING – Outside fire for vegetation, waste, or trash disposal.

DIRECT PROTECTION AREA (DPA) – The area for which a particular fire protection organization has the primary responsibility by law or contract for attacking an uncontrolled fire and directing the suppression activities.

EQUIPMENT USE – Fire ignited by the use or failure of mechanical or electrical equipment. Does not include fire ignited by powerlines.

FOREST FIRE – A fire burning uncontrolled on land covered entirely or in part by timber, brush, grass, grain or other flammable vegetation.

LIGHTNING – Fire ignited by lightning discharge.

LOCAL GOVERNMENT – A fire department, especially of a municipal government, whose purpose is preventing and extinguishing fires.

LOCAL GOVERNMENT CONTRACT – PRC §4142 allows CAL FIRE to contract with local governments to provide fire protection and emergency services through the administration of 146 cooperative fire protection agreements in 35 of the State's 58 counties, 25 cities, 31 fire districts and 34 other special districts and service areas.

MISCELLANEOUS – Fire ignited by events or activities that are not classified as arson, campfire, debris burning, equipment use, lightning, playing with fire, powerline, railroad, smoking, vehicle, or undetermined.

OUTBUILDING – A building that is separate from a main building and located on the same property.

PLAYING WITH FIRE (P-W-F) – Fire ignited unintentionally by children while playing or experimenting with fire or fire-causing devices.

ELECTRICAL POWER – Fire ignited by electrical power distribution or transmission.

RAILROAD – Fire ignited by rail transport vehicles or fire ignited on or near railroad right-of-way.

SMOKING – Fires ignited by smoking tobacco or other smoking material; includes matches, lighters, or other heat sources used in smoking.

STATE RESPONSIBILITY AREA (SRA) – Areas of the State in which the financial responsibility of preventing and suppressing fires has been determined by the State Board of Forestry and Fire Protection, to be primarily the responsibility of the State, PRC §4102.

STRUCTURE – An assembly of materials forming a construction for occupancy or use to serve a specific purpose, includes enclosed building, fixed portable building or mobile home.

UNCONTROLLED FIRE – Any fire which threatens to destroy life, property, or resources and either: (1) is unattended by any person; (2) is attended by persons unable to prevent its unrestricted spread; and (3) is burning with such velocity or intensity that it could not be readily controlled with ordinary tools available to persons at the fire scene.

UNDETERMINED – A fire that has been investigated or is under investigation and has insufficient information to classify further or a fire that has not yet been investigated.

VEHICLE – Fire ignited by mobile property which include: Passenger automobile, bus, school bus, off road recreational, motor home, travel trailer, camping trailer, mobile home or office designed to be towed, motorcycle or scooter.

WILDFIRE – Any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property, or resources, PRC §4103 and 4104.

WILDLAND-URBAN INTERFACE – A geographical area identified by the State as a “Fire Hazard Severity Zone” in accordance with the PRC §4201 through 4204 and Government Code §51175 through 51189, or other areas designed to be at a significant risk from wildfires.

Exhibit 82

PACIFIC GAS AND ELECTRIC COMPANY
EXHIBIT PGE-0003
TRANSMISSION RISK MANAGEMENT AND
PROJECT MANAGEMENT IMPROVEMENTS

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Pacific Gas and Electric Company)

Docket No. ER19-____-000

Summary of the Prepared Direct Testimony
of David P. Gabbard

Mr. Gabbard's testimony (Exhibit No. PGE-0003) describes PG&E's risk management programs and how these programs inform PG&E's investment in electric transmission projects in 2018 and 2019. He explains PG&E's process and the tools used to identify risk drivers, controls, and mitigation options. Mr. Gabbard goes on to define each of PG&E's top risks. He describes how PG&E seeks to mitigate its top risks, including risks associated with wildfires, failure of a substation, overhead conductors, and other transmission-related risks. He also explains how PG&E's risk assessments help prioritize PG&E's capital investments in transmission infrastructure. Finally, Mr. Gabbard describes PG&E's project management process and, specifically, improvements that PG&E has made to its project management process.

PACIFIC GAS AND ELECTRIC COMPANY
EXHIBIT PGE-0003
TRANSMISSION RISK MANAGEMENT AND
PROJECT MANAGEMENT IMPROVEMENTS

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**PACIFIC GAS AND ELECTRIC COMPANY
EXHIBIT PGE-0003
TRANSMISSION RISK MANAGEMENT AND
PROJECT MANAGEMENT IMPROVEMENTS**

A. Introduction

Q 1 Please state your name and business address.

A 1 My name is David P. Gabbard, and my business address is Pacific Gas and Electric Company, 245 Market Street, San Francisco, California.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 I am the Senior Director, Transmission Asset Management, overseeing PG&E's Transmission Asset and Risk Management Department. I have been in my current position since February 2017. I have worked at PG&E since 2005, holding a variety of leadership positions across the Engineering, Generation Interconnection, Project Management, Risk Management, Asset Strategy, and Transmission Planning organizations.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor of Science degree in Mechanical Engineering from California Polytechnic State University, in 2006, and a Master of Business Administration degree from the University of Pennsylvania Wharton School, in 2017. I hold a Project Management Professional certification from the Project Management Institute.

I have testified before the California Public Utilities Commission (CPUC) in the Net Energy Metering Successor Rulemaking (R.14-07-002), and the CPUC Cost Certainty Technical Conference (R.11-09-011). Before the Federal Energy Regulatory Commission, I have testified at the Generator Interconnection Agreement and Procedures Technical Conference (Docket No. RM16-12-000) and PG&E's Transmission Owner Tariff TO18 Hearing (Docket No. ER16-2320-002).

1 Q 4 What is the purpose of your testimony?

2 A 4 I am providing a description of PG&E's risk management programs
3 and explaining how these programs inform PG&E's investment in
4 Electric Transmission (ET) projects in 2018 and 2019. I also explain
5 PG&E's process and the tools used to identify risk drivers, controls,
6 and mitigation options.

7 I go on to define PG&E's top ET risks, describe how PG&E's
8 investments help mitigate those top risks, and, in so doing, improve
9 overall system safety and reliability. I also explain how PG&E's risk
10 assessments help prioritize PG&E's capital investments in
11 transmission infrastructure.

12 **B. Goals and Objectives**

13 Q 5 How did PG&E develop the portfolio of projects included in this
14 twentieth TO Tariff filing (TO20)?

15 A 5 PG&E's Capital Investment Plan consists of projects and programs
16 planned over the next five years that are expected to be needed to
17 meet the system's requirements over that period.

18 The plan is reviewed and updated every year to reflect the
19 progress of in-flight activities and changes to the operating
20 environment since the last plan update. Projects are added or
21 removed as new projects are identified or in-flight projects are
22 completed. The portfolio of 2018 and 2019 projects in this filing
23 reflects a portion of PG&E's multi-year Investment Plan.

24 Q 6 How does PG&E use risk management associated with its ET system
25 to inform investment planning and capital investments?

26 A 6 Asset risk assessments inform PG&E's asset strategy and investment
27 planning. PG&E's risk assessments have a strong foundation
28 focused on the safety of the public, PG&E's employees, and
29 contractors. PG&E continues to work to quantify risk exposure in
30 developing a fully data-driven, risk-based decision-making model that
31 supports the safe, reliable and efficient operation of PG&E's

1 transmission system. Achieving this goal will be necessary to
2 maintain and improve PG&E's transmission system performance.

3 PG&E performs a Risk Informed Budget Allocation (RIBA)
4 analysis to characterize risks based on a number of factors. The
5 RIBA process is used to evaluate projects and programs from safety,
6 environmental, and reliability perspectives to assess the degree of
7 relative risk exposure and impact being addressed. In addition to
8 safety, environmental and reliability risks, other factors including, but
9 not limited to, compliance requirements and project
10 inter-dependencies are incorporated into the evaluation to inform
11 capital investment decisions.

12 The RIBA tool is used to aggregate the individual project and
13 program risk assessments to support calibration meetings involving
14 PG&E's project and program sponsors to compile the capital
15 investment plan that meets all of the most critical demands of the ET
16 system, consistent with available resources and operational
17 performance requirements.

18 **C. PG&E's Safety and Risk Management**

19 Q 7 Please describe PG&E's risk management process for Electric
20 Operations (EO).

21 A 7 Risk-informed decision making has become the standard for PG&E.
22 PG&E quantifies risks utilizing the Enterprise Risk Management
23 process which includes Electric Operations Risk. EO has established
24 a risk process that requires EO personnel to identify, evaluate,
25 respond to, and monitor risks. The program provides a repeatable
26 and consistent method of managing risks and is an important element
27 of PG&E's Integrated Planning Process. Identified risks are housed
28 in EO's Risk Register.

29 Q 8 How does PG&E integrate safety into its risk management process?

30 A 8 Safety is at the heart of how PG&E measures and prioritizes risk.
31 Safety is inextricably linked to PG&E's risk management process and
32 is weighted most heavily in the analysis. Through this risk

1 management process, safety exposure is now more transparent. The
2 relationship between safety and risk is one that will continue to be
3 analyzed and refined as needed, especially in connection with
4 PG&E's risk-informed approach for funding work.

5 Q 9 How does PG&E categorize these risks?

6 A 9 Risks are categorized as enterprise risks or operational risks.
7 Enterprise risks are risks that could have a catastrophic impact on
8 PG&E if they were to occur. Operational risks are either asset or
9 process related. Asset related risks have consequences associated
10 with component failure or malfunction. Process-based risks are
11 generally associated with business processes and operations, not
12 assets. While not asset specific, some process risks can have safety
13 and reliability related consequences.

14 Q 10 How does PG&E evaluate these risks?

15 A 10 EO uses two tools to evaluate items on the Risk Register: (1) The
16 Risk Evaluation Tool (RET); and (2) Risk Assessments.

17 Q 11 Please describe these tools.

18 A 11 EO uses RET to establish a risk score for each risk in the Risk
19 Register. While EO does not modify the RET model, a variety of
20 data, as well as judgment, are necessary when applying the
21 frequency and impact scales of the model and in the formulation of
22 the scoring scenarios. The RET allows for scoring risks based on a
23 scoring scenario to provide a Risk Register score. This scenario is
24 chosen by Subject Matter Experts (SME) and represents a qualitative
25 probable worst-case scenario of the risk being assessed. The RET
26 evaluates the risk based on seven components: (1) Safety;
27 (2) Environment; (3) Compliance; (4) Reliability; (5) Trust;
28 (6) Financial; and (7) Frequency.

29 The purpose of a risk assessment is to identify potential hazards
30 and analyze what might happen if a hazard event occurs. Within EO,
31 risk assessments are used to provide a systematic understanding of
32 the items on the Risk Register. EO uses a common framework to
33 perform risk assessments and upon completion, the assessments are

1 presented to leadership for review and approval of the Risk Register
2 scores and recommended mitigations. The components of a risk
3 assessment include: (1) Risk definition and scope; (2) Scoring
4 scenario (the "P95" scenario); (3) Risk Register score;
5 (4) Identification of risk drivers and consequences; (5) Identification
6 and assessment of existing controls; and (6) Identification of current
7 gaps in controls and consideration of alternative mitigations.

8 SMEs compile and analyze information such as asset condition
9 data, event reports, and reliability data, among other information, to
10 perform the assessment. The SMEs also identify and assess existing
11 controls and identify potential new mitigation options (or
12 strengthening of existing controls) during the assessment. Periodic
13 reviews with the risk owner are conducted during the assessment.
14 During these reviews, there are discussions regarding alternative
15 mitigation options and decisions regarding which mitigations to
16 recommend to leadership. After the leadership approves a risk
17 assessment, the approved mitigations are tracked to ensure
18 completion.

19 Q 12 How does PG&E categorize the level of risk control strength?

20 A 12 During the risk assessment process, the risk is assigned a Red,
21 Amber, or Green status, which determines if the risk is Red (controls
22 are not adequate); Amber (controls need strengthening); or Green
23 (controls are adequate). Newly identified risks are considered a
24 Black status (risk status under evaluation) until they go through the
25 assessment to determine the strength of the controls to mitigate
26 the risk.

27 Q 13 What are the main risks identified affecting the transmission system?

28 A 13 Risks affecting the Transmission System include: wildfire, failure of
29 substation, and transmission overhead conductors.

1 1. Wildfire Risk

2 Q 14 Please describe the wildfire risk.

3 A 14 PG&E defines wildfire risk as PG&E assets that may initiate a
4 wildland fire that endangers: the public, private property, sensitive
5 lands, and/or leads to long-duration service outages.

6 Q 15 What are the drivers for the wildfire risk?

7 A 15 Drivers to fire ignitions have been classified under the following
8 categories: (1) vegetation; (2) equipment failure – conductor;
9 (3) equipment failure – connector/hardware; (4) equipment failure –
10 other; (5) third-party contact; (6) animal; (7) fuse operation; and
11 (8) unknown.

12 Q 16 What are the major controls of the wildfire risk?

13 A 16 Numerous EO programs and operational activities mitigate the
14 wildfire risk. Transmission related controls include: (1) overhead
15 patrols and inspections; (2) Vegetation Management (VM); (3) animal
16 abatement; (4) deteriorated pole replacement; (5) design standards;
17 and (6) restoration, operation procedures and training.

18 Q 17 How is PG&E reducing wildfire risk?

19 A 17 The fires that Californians experienced during October through
20 December 2017 revealed a “new normal” in terms of wildfire
21 frequency, severity, duration and the time of year that fires can be
22 expected to occur. In response, PG&E began the task of developing
23 long-term approaches to addressing the “new normal.” These
24 approaches are being implemented under PG&E’s Community
25 Wildfire Safety Program (CWSP).

26 The CWSP initiatives fall into three main categories: wildfire
27 prevention and emergency response; new and enhanced safety
28 measures; and electric system hardening. The CWSP also includes
29 a process to share with communities information about the actions
30 that PG&E is taking, provide resources, and help customers and
31 communities prepare for, and stay safe during, extreme weather
32 events.

1 Since PG&E's exposure to wildfire risk is primarily on its
2 distribution assets, the CWSP initiatives are focused on those assets.
3 However, the CWSP includes several initiatives that contribute to
4 reducing transmission wildfire risk.

5 Q 18 How is PG&E improving wildfire prevention and emergency
6 response?

7 A 18 To bolster wildfire prevention and emergency response efforts, PG&E
8 is working in coordination with first responders, public safety agencies
9 and other community partners to:
10 • Establish a Wildfire Safety Operations Center that monitors
11 wildfire risks in real-time and coordinates prevention and
12 response efforts with first responders;
13 • Expand the network of PG&E weather stations across the service
14 area to capture additional real-time data that will enhance
15 weather forecasting and modeling and help stay ahead of
16 potential fire threats; and
17 • Increase PG&E fire safety resources to protect electric
18 infrastructure, assist utility crews working in high fire-danger
19 areas, and support first responders as needed.

20 Q 19 How is PG&E enhancing safety measures?

21 A 19 PG&E's efforts to enhance safety measures include:
22 • Executing more rigorous VM for high fire-risk areas to meet new
23 state regulations, and creating fire safety zones to provide an
24 additional layer of protection in the highest fire-threat areas;
25 • Disabling reclosing technology on lines in high fire-threat district
26 areas during fire season and during periods of high fire-risk; and
27 • Refining and executing protocols to proactively shut off electric
28 power where extreme fire conditions are occurring, including
29 protocols for advance customer and community communications
30 and support.

31 It should be noted that as part of the transmission overhead
32 conductor risk, one of the proposed mitigations is additional
33 right-of-way (ROW) expansion. This VM improvement mitigation is

1 focused on improving reliability by reducing vegetation-caused
2 outages on transmission overhead conductor. This mitigation may
3 have some impact in reducing transmission wildfire risk.

4 Q 20 How is PG&E hardening its electric system and integrating new
5 technologies?

6 A 20 Though the majority of mitigations to harden PG&E's system are
7 focused on distribution assets, some mitigations benefit both
8 transmission and distribution assets. Mitigations to harden PG&E's
9 system and integrate new technologies include:

- 10 • Investing in stronger, coated power lines;
- 11 • Replacing certain wood poles with non-wood material, with a
12 focus on the highest fire-threat areas;
- 13 • Spacing lines farther apart to prevent line-on-line contact during
14 wind storms; and
- 15 • Working with communities to develop microgrids to enhance
16 resiliency.

17 2. Failure of Substation Risk

18 Q 21 Describe the failure of substation risk.

19 A 21 The failure of substation risk is defined as: a complete loss of a
20 substation that may result in significant wide-scale/prolonged
21 outages, public or employee safety issues, significant environmental
22 damage, or significant property damage. This risk examines,
23 holistically, the factors that drive substation failures, and the controls
24 and mitigations being implemented to reduce the risk of those
25 failures.

26 Q 22 What are the main drivers of the failure of substation risk?

27 A 22 The drivers of this risk are categorized into the following categories:
28 (1) equipment failure; (2) work procedure error; (3) aging
29 infrastructure; (4) maintenance; (5) animal; (6) weather; (7) cyber
30 attack; (8) geomagnetic storm; (9) sabotage; (10) seismic; and
31 (11) gas collocation.

1 Q 23 What are the main controls of the failure of substation risk?

2 A 23 The controls for the risk of substation failure are focused on mitigating
3 the frequency of the risk drivers. Examples of controls include asset
4 related controls, such as: (1) proactive asset replacement,
5 (2) lightning protection, (3) design criteria, (4) drawings and facility
6 markings, (5) bus upgrades, (6) damage modelling, and (7) grounding
7 systems; inspection and maintenance controls, such as (8) proactive
8 maintenance and (9) substation M&C inspections; operational
9 controls, such as (10) standards and procedures and (11) switching
10 procedures; physical security controls, such as (12) intrusion
11 detection, (13) access controls, (14) site illumination, and
12 (15) physical security, and (16) onsite security guards; and a gas
13 collocation control, (17) gas line corrosion protection. There are also
14 controls to reduce the consequences of a substation failure, were it to
15 occur, such as (18) emergency work/emergency response, (19) fire
16 protection/suppression systems, (20) oil containment/spill prevention
17 and containment controls, (21) capitalized emergency materials
18 (CEM), (22) Personal Protective Equipment, (23) Supervisory Control
19 and Data Acquisition (SCADA), (24) community outreach, and
20 (25) outage communications.

21 Q 24 How is PG&E reducing the failure of substation risk?

22 A 24 The failure of substation risk is being mitigated through two primary
23 mitigations. The first mitigation is PG&E's Bus Reliability and
24 Upgrade Program. This program includes work to modify and/or
25 replace substation buses to reduce the likelihood of bus level
26 outages, which could, in turn, lead to large and prolonged
27 substation outages.

28 The second mitigation includes projects to reduce the risk of
29 substation outages caused by potential failure of gas pipelines
30 collocated with PG&E substations. This program involves reviewing
31 studies on collocated pipelines and performing work, such as:
32 pipeline/substation equipment relocation, ground grid modifications,

1 or fencing replacement to reduce the risk and impacts of collocated
2 pipeline failure were it to occur.

3 3. Transmission Overhead Conductor Risk

4 Q 25 Describe the transmission overhead conductor risk.

5 A 25 The transmission overhead conductor risk is defined as: failure of or
6 contact with energized ET conductor may result in public or employee
7 safety issues, fires, significant property damage.

8 Q 26 What are the main drivers of transmission overhead conductor risk?

9 A 26 PG&E divides the drivers of this risk into two sets, based on the
10 events examined in this risk. The first risk event is also a driver. This
11 event/driver represents the risk of third-party contact with
12 transmission overhead conductors that have not failed, and are
13 still intact.

14 The second risk event relates to wires down. The drivers to the
15 wires down risk event include: (1) vegetation; (2) third-party (wire
16 down); (3) equipment failure – conductor; (4) equipment failure –
17 other; (5) equipment failure – connector/hardware; (6) natural forces;
18 (7) Company-initiated; and (8) animal contact.

19 Q 27 What are the major controls of transmission overhead conductor risk?

20 A 27 The transmission overhead conductor risk controls are designed to
21 control the risk of third-party contact with intact conductor and
22 transmission wires down. Controls include: (1) public awareness
23 programs; (2) anti-climbing guards; (3) aircraft line markers;
24 (4) inspection and maintenance; (5) design, construction and
25 operating procedures; (6) conductor/equipment replacement
26 programs; (7) capacity program (overload monitoring); (8) VM;
27 (9) ROW expansion; (10) animal abatement; (11) restoration and
28 response; and (12) system protection programs.

29 Q 28 How is PG&E reducing transmission overhead conductor risk?

30 A 28 PG&E is currently implementing four mitigations to reduce overhead
31 conductor risk. The first two mitigations revolve around equipment
32 replacement work: additional overhead conductor replacement and

1 additional insulator replacement. Replacing additional conductors
2 and insulators reduces the likelihood that those conductors and
3 insulators will fail, therefore reducing the likelihood that those failures
4 will lead to transmission wires down.

5 The third mitigation is additional ROW expansion. This mitigation
6 represents work to expand the vegetation ROW corridors around
7 transmission lines which have historically experienced large numbers
8 of vegetation related outages. Expanding vegetation ROWs on these
9 lines reduces the likelihood that they will fail and cause wires down
10 due to contact with vegetation.

11 The fourth mitigation is additional public awareness outreach.
12 This mitigation involves sending bill inserts to customers to inform
13 them of the dangers of energized conductors, and to warn them not
14 to climb electrical structures such as transmission towers. This
15 mitigation is designed to reduce the likelihood of third-party contact
16 with intact transmission overhead conductor.

17 4. Other Transmission Risk Reduction Work

18 Q 29 What other work is PG&E doing to reduce transmission risk?

19 A 29 PG&E is implementing other programs to reduce general
20 transmission risk. These programs include the Transmission Line
21 SCADA Switch Program and the Tower Replacement Program.

22 Q 30 Describe the Transmission Line SCADA Switch Program and how
23 that will address the Transmission Risk.

24 A 30 The Transmission Line SCADA Switch Program is established to
25 reduce the outage duration for customers served by various
26 substations by providing remote restoration or de-energization
27 capability on targeted transmission lines. This program is to install
28 Transmission Line SCADA switches at existing and new locations to
29 improve customer and grid reliability by providing capability and
30 access to/from control centers to operate the installed switches and
31 improve electric grid reliability and system operation under normal
32 and emergency operating conditions.

1 Q 31 Describe the Tower Replacement Program and how that will address
2 the Transmission Risk.

3 A 31 The Tower Replacement Program is established to manage the
4 replacement of steel structures that have reached the end of their
5 useful lives. The program targets replacement of deteriorated
6 structures where repair is either less cost effective or not feasible.

7 **D. PG&E's Project Management Improvements**

8 Q 32 Please explain the project management improvements that have
9 been made by PG&E.

10 A 32 PG&E has undertaken major improvements to its project
11 management processes over the past few years, which have resulted
12 in recent forecasts being much closer to the actual capital additions
13 achieved in those forecast periods.

14 In 2012, PG&E re-structured its ET organization, in part to
15 improve the performance of its project management processes.
16 As part of this re-structuring, PG&E created a centralized work and
17 resource management group to provide project management
18 oversight and governance.

19 This group undertook several initiatives to improve project
20 management performance. Changes resulting from some of these
21 initiatives include:

- 22 • The creation of an integrated planning calendar, combining all
23 external (e.g., TO filings) and internal work planning initiatives to
24 ensure that inputs are consistent across all of those initiatives;
- 25 • The creation of the ET Capital Investment and Execution (CIE)
26 Planning Process;
- 27 • A shift from a single year to a five-year planning horizon.
28 A longer-term planning horizon improves visibility into the
29 upstream impacts of long-term project operational dates,
30 improving PG&E's ability to limit volatility in project plans and
31 reduce costs by allowing PG&E to make, and follow, multi-year
32 contract commitments with suppliers; and

- 1 • The adoption of the forecasting guidelines established by the
2 Association for the Advancement of Cost Engineering (AACE)
3 International.

4 Q 33 How does PG&E optimize the execution of its transmission
5 investments?

6 A 33 PG&E develops a five-year plan that includes a portfolio of work
7 necessary to safely and reliably operate its transmission system.
8 PG&E leverages this longer-term view to manage demand on
9 construction and engineering resources. This multi-year work plan
10 allows PG&E to optimize the utilization of limited resources and
11 minimize impact of project level volatility.

12 Q 34 From time-to-time, does PG&E advance projects within its
13 five-year plan?

14 A 34 Yes. PG&E views the ability to more efficiently execute a broader
15 book of work on behalf of its customers as an obligation. It is the
16 intent of PG&E's ET leadership to perform as much of the work in its
17 five-year plan at as low a cost as possible in order to maximize the
18 value created for its customers. PG&E balances and stabilizes its
19 five-year plan by identifying work that may be accelerated or deferred
20 in order to achieve operational efficiencies across its transmission
21 portfolio.

22 This advancement process may be employed when a project
23 PG&E planned to implement could not be implemented for some
24 reason. Given the scale and scope of PG&E's service area, there are
25 a variety of reasons that might impact the schedule for a transmission
26 project that is planned for the current year, including, but not limited
27 to emergency replacements, clearance availability, permit approval,
28 reassignment of resources, and identification of new Work at the
29 Request of Others.

30 Active decisions to accelerate or defer work can help mitigate the
31 impact of these project delays that are outside of PG&E's control and
32 keep resource utilization maximized as well as clearance utilization

1 maximized to minimize overall cost of implementing the transmission
2 portfolio.

3 Triggers and levers are terms that have been operationalized
4 within ET Operations. "Triggers" is a term that was coined for work
5 that has its preconstruction dependencies cleared prior to the point in
6 time where construction is planned to start. Those projects are
7 identified to have shovel-ready work that can be pulled forward to
8 keep resources utilized or to utilize available clearances if other
9 planned work were to encounter issues limiting the ability to proceed
10 on plan. This approach to portfolio management allows PG&E to
11 efficiently execute on the broader portfolio despite project specific
12 issues arising.

13 "Levers" is a list of projects that have float within their overall
14 schedule, whose construction start date or the start date of any given
15 phase may be delayed a period of time without materially impacting
16 the operative date for that project.

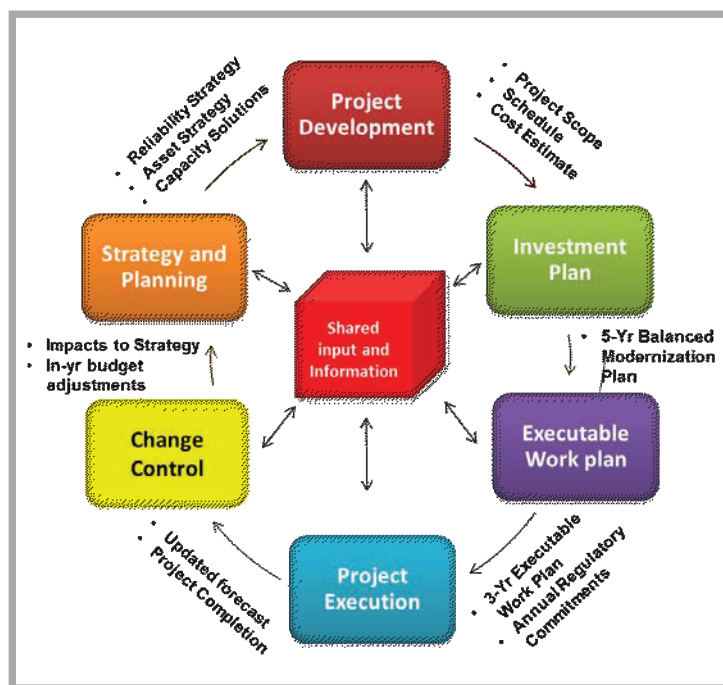
17 In summary, PG&E executes a five-year work plan. The projects
18 that may be delayed or accelerated within that five-year work plan are
19 still completed, but in a different order to allow PG&E to optimize
20 execution of its five-year transmission portfolio.

21 Q 35 What is the ET CIE Planning Process?

22 A 35 CIE Planning Process is a multi-stage process that is used to
23 advance projects from strategy through execution including project
24 close out. The process was initiated in 2015 to increase collaboration
25 within ET and create greater work efficiencies for transmission and
26 substation projects.

27 It is a cyclical and iterative process, with shared inputs and
28 outputs and six primary sub-processes. Figure PGE-0003-1 below
29 shows the six sub-processes: (1) Strategy and Planning; (2) Project
30 Development; (3) Investment Plan; (4) Executable Work Plan;
31 (5) Project Execution; and (6) Change Control.

FIGURE PGE-0003-1
PG&E'S CAPITAL INVESTMENT AND EXECUTION PLANNING PROCESS



The first three sub-processes advance projects primarily through planning type of processes and the second three advance projects primarily through execution type processes. The first three planning focused sub-processes are discussed in this exhibit. The remaining three execution focused sub-processes are further described in Mr. Bangalore Vijayraghavan's testimony in Exhibit No. PGE-0009.

Q 36 Describe the Strategy and Planning process.

A 36 Strategy and Planning is the process through which the ET system needs are identified,¹ strategies are developed, and new ET and substation projects and programs are proposed to enable PG&E to continue to provide a safe, reliable, and affordable ET system that serves PG&E's wholesale and retail customers and supports California's clean energy goals.

¹ The Strategy and Planning process includes PG&E's participation in the California Independent System Operator's Transmission Planning Process.

1 Strategy and Planning incorporates the enterprise risks identified
2 during PG&E's "Session D" in the development of the asset strategies
3 and plans. The process allows for a cross-functional review of the
4 strategies and plans to achieve a collaborative multi-year plan for ET.

5 Q 37 Describe the Project Development Process.

6 A 37 Project Development evaluates the programs and project proposals
7 that are identified in the Strategy and Planning process for feasibility
8 and develops proposals into capital projects. Through table top
9 exercises with a group of cross functional internal subject matter
10 experts, project requirements, constraints, and risks are identified and
11 documented to inform the development of the initial project scopes,
12 schedules, and costs. Additionally, opportunities to bundle work are
13 identified during this process to capture efficiencies, such as doing
14 work at the same facility on a similar schedule or taking advantage of
15 clearance windows from one project for another.

16 This process included the creation of a uniform project
17 development scoping process, bringing more consistency and
18 governance to project management. The process includes
19 requirements to use standardized templates and checklists for project
20 scope development, and a review process to assess the soundness
21 of project scopes.

22 Q 38 Describe the Investment Plan process.

23 A 38 The Investment Plan process aligns the planned and newly identified
24 Project Development programs and projects with the annual
25 approved ET budget targets. Projects are prioritized for funding
26 using RIBA.

27 Outputs from the Investment Plan process include:

28 (1) Session 1, a portfolio-level financial forecast, which is a five-year
29 operational plan that delivers on the Strategy and Planning goals; and
30 (2) Session 2 results, which translate Session 1 goals into a two-year
31 work plan, resource plan, and budget. The 2018 Session 2 results
32 form the basis for the forecast presented in this TO20 filing.

1 Q 39 Describe the Executable Work Plan process.

2 A 39 The Executable Work Plan process provides a framework to review
3 projects and project schedules prior to execution to ensure that they
4 can truly be executed given real world constraints. The framework
5 includes executability, construction readiness, and resource
6 balancing metrics to measure performance.

7 Further details for the Executable Work Plan process, as well as
8 the Project Execution and Integrated Change Control processes are
9 provided in Mr. Vijayraghavan's testimony in Exhibit No. PGE-0009.

10 Q 40 Describe the Project Execution process.

11 A 40 The Project Execution process measures the actual performance of
12 the project execution teams against the plan. The attainment of key
13 project milestones is tracked, including construction start and project
14 operational dates.

15 Q 41 Describe the Integrated Change Control process.

16 A 41 The Integrated Change Control process tracks and manages project
17 changes that impact the scope, schedule, and/or cost. The process
18 provides a consistent method for requesting, reviewing, and
19 approving changes to projects.

20 Q 42 Describe the AACE forecasting guidelines and how this has improved
21 PG&E's project management processes?

22 A 42 The AACE has 8,500 members in 100 countries, and has been
23 serving the total cost management community since 1956, with
24 members in a variety of disciplines and across all industries. AACE
25 offers cost management certifications accredited by the Council of
26 Engineering and Scientific Specialty Boards, and the body of
27 knowledge includes Recommended Practices, the Total Cost
28 Management Framework and Cost Engineering Journal, a peer
29 reviewed technical journal. AACE guidelines include methodologies
30 for developing recommended ranges for project scope uncertainty
31 and including risk allowances into project estimates. AACE
32 guidelines recognize that the accuracy of estimates, especially
33 estimates made in early stages of project lifecycles, can have large

1 variances from final costs. AACE guidelines expect that cost
2 estimates made in early project phases can fall within a range of
3 +100 percent to -50 percent around the point estimate. Even for
4 projects with more mature definition, AACE guidelines still show that
5 a -10 percent to +15 percent variation from a point estimate is typical,
6 and to be expected.

7 Note that AACE states that the low values represent a P10 and
8 the high value represent a P90, meaning that 80 percent of estimates
9 would be covered by the ranges in the matrix. This means that some
10 estimates (20 percent) could even exceed the high and low ranges
11 shown in the classification matrix.

12 The AACE forecasting guideline ranges include considerations of
13 unknown projects risks that may occur. The inclusion of the cost
14 ranges allows for more confidence in the project costs.

15 Q 43 Does this conclude your prepared testimony?

16 A 43 Yes, it does.

DECLARATION

I, David P. Gabbard, identified in the foregoing prepared direct testimony, do hereby declare under penalty of perjury, that I prepared or caused such testimony to be prepared; that the answers appearing therein are true to the best of my knowledge and belief; and that if asked the questions appearing therein, my answers would, under oath, be the same.

Executed on September 19, 2018 at San Francisco, California.

/s/ David P. Gabbard

David P. Gabbard

Exhibit 83

PACIFIC GAS AND ELECTRIC COMPANY
EXHIBIT PGE-0006
TRANSMISSION OPERATION AND MAINTENANCE
EXPENSES

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Pacific Gas and Electric Company)

Docket No. ER19-____-000

Summary of the Prepared Direct Testimony
of Jessica Tsang

Ms. Tsang's testimony (Exhibit PGE-0006) explains how the transmission Operations and Maintenance (O&M) expense component of the Prior Year Transmission Revenue Requirement (TRR) is determined. The methodology is described in PG&E's Protocols for the Formula Rate (Exhibit No. PGE-0022) and is included in Schedule 18-OandM of the Formula Rate Model (Exhibit No. PGE-0023).

The testimony explains that the Prior Year TRR calculation begins with PG&E's recorded transmission O&M expenses, as reported in Federal Energy Regulatory Commission (FERC) Form 1. Adjustments are made to the FERC Form 1 recorded expenses, resulting in the Recorded Adjusted Expenses. Finally, Recorded Adjusted Expenses are allocated to the Prior Year TRR using Unbundled Cost Categories. Ms. Tsang's testimony also provides examples of the types of expenses recorded in transmission O&M expense FERC Accounts (Accounts 560-566 and 568-573).

PACIFIC GAS AND ELECTRIC COMPANY
EXHIBIT PGE-0006
TRANSMISSION OPERATION AND MAINTENANCE EXPENSES

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PACIFIC GAS AND ELECTRIC COMPANY
EXHIBIT PGE-0006
TRANSMISSION OPERATION AND MAINTENANCE
EXPENSES

A. Introduction

Q 1 Please state your name, title, and business address.

A 1 My name is Jessica Tsang, I am a Principal Regulatory Analyst, and my business address is Pacific Gas and Electric Company (PG&E), 245 Market Street, San Francisco, California.

Q 2 Briefly describe your current responsibilities at PG&E.

A 2 As a Principal Regulatory Analyst in the Electric Business Operations Department within the Electric Operations organization, I am responsible for serving as a regulatory witness supporting PG&E's request for electric transmission Operations and Maintenance (O&M) expense and providing regulatory support for electric transmission matters.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor of Science degree from University of California, Davis in Managerial Economics. Prior to joining PG&E, from 2007-2010, I interned at the California Public Utilities Commission (CPUC) for a Commissioner, providing advisory support on various issues spanning the telecommunications, water, safety, and energy industries.

Since joining PG&E in 2010, I have held various positions of increasing responsibility. I began employment with PG&E as an associate policy analyst supporting PG&E's energy efficiency programs. I subsequently changed organizations to serve as regulatory case manager on gas safety matters. Following my role as regulatory case manager, I was a senior product manager on the Electrification and Electric Vehicles team, where I was primarily focused on electric vehicle-related regulatory and policy matters, as well as PG&E's participation in the California Air Resources Board's Low Carbon Fuel Standard Program. Prior to my current role, I was a

1 senior product manager in the Customer Energy Solutions – Pricing
2 Products organization, where I held separate roles on the Sustainable
3 Products and Residential Rate Reform teams. On the Sustainable
4 Products team, I was responsible for the implementation and
5 administration of Greenhouse Gas allowance revenue return
6 programs for customers. On the Residential Rate Reform team, I
7 was responsible for providing regulatory expertise on regulatory
8 filings and supporting the department's compliance efforts.

9 Q 4 Have you sponsored testimony to the Federal Energy Regulatory
10 Commission (FERC) previously?

11 A 4 Yes, I have previously adopted testimony supporting the request for
12 Transmission O&M expenses in PG&E's eighteenth and
13 nineteenth Transmission Owner (TO18) and (TO19) proceedings in
14 Docket Nos. ER16-2320-002 and ER17-2154-000, respectively.

15 Q 5 What is the purpose of your testimony?

16 A 5 My testimony explains how PG&E's proposed formula rate
17 determines the transmission O&M expense component of the Prior
18 Year Transmission Revenue Requirement (TRR) in this
19 twentieth Transmission Owner (TO20) Tariff Application. The
20 methodology is described in PG&E's Protocols for the Formula Rate
21 (Exhibit PGE-0022) and is included in Schedule 18-OandM of the
22 Model (Exhibit PGE-0023). Specifically, I describe the O&M expense
23 formula in Section B below and the allocation of transmission O&M
24 expenses to the Prior Year TRR in Section C.

25 **B. Overview of O&M Expense Formula**

26 Q 6 Please explain how the formula rate determines the transmission
27 O&M expense component of the Prior Year TRR.

28 A 6 The transmission O&M expense Prior Year TRR is calculated in
29 Schedule 18 of the Model. The Prior Year TRR calculation begins
30 with PG&E's recorded 2017 transmission O&M expenses, as
31 reported in FERC Form 1 (Schedule 18, Column 5, line 15). PG&E
32 uses recorded cost information from its accounting system to

1 separate the labor and non-labor components of the transmission
2 O&M expense. Adjustments are made to the FERC Form 1 recorded
3 O&M expenses (Schedule 18, Column 8, line 15). Summing the
4 Recorded FERC Form 1 (Schedule 18, Column 5, line 15) and
5 adjustments (Schedule 18, Column 8, line 15) results in the 2017
6 Recorded Adjusted O&M Expenses (Schedule 18, Column 12,
7 line 15).

8 To calculate the Prior Year TRR (Schedule 18, Column 10,
9 line 31), the Recorded Adjusted O&M Expenses are allocated using
10 Unbundled Cost Categories (UCC).

11 Q 7 What types of adjustments are made to the FERC Form 1 recorded
12 data?

13 A 7 Adjustments are made to FERC Form 1 recorded data to: (1) correct
14 accounting errors to ensure transmission-related costs are recorded
15 appropriately for the purposes of this filing; (2) reclassify expenses to
16 ensure labor and non-labor expenses are correctly classified; and
17 (3) remove expenses with unique ratemaking treatment.

18 Expenses with unique ratemaking treatment include the California
19 Independent System Operator Corporation's (CAISO) Grid
20 Management Charge (GMC), Hazardous Substance Mechanism
21 (HSM) expenses, and New Product and Services (NP&S) expenses.
22 I describe each of these briefly below.

23 With regard to the CAISO GMC, starting on April 1, 2006,
24 Account 561 – Load Dispatching was subdivided to allow each
25 Regional Transmission Organization (RTO) and Independent System
26 Operator to record its share of operating costs.¹ These costs are
27 recorded in three sub-accounts: (1) 561.4 Scheduling, System
28 Control and Dispatching Services; (2) 561.8 Reliability Planning and
29 Standards Development Services; and (3) 575.7 Market
30 Administration, Monitoring and Compliance Services (Regional

¹ *Accounting and Financial Reporting for Public Utilities including RTOs*,
113 FERC ¶ 61,276 (2005).

1 Marketing Expenses). PG&E records the CAISO's GMC charges in
2 Accounts 561.4, 561.8, and 575.7. Since GMC charges are
3 recovered through CPUC-approved tariffs, GMC expenses are
4 removed from FERC Form 1 recorded amounts.

5 PG&E also removes any hazardous waste clean-up expenses
6 recorded in electric transmission O&M FERC accounts that PG&E is
7 seeking recovery of through the CPUC-jurisdictional HSM.

8 Finally, any NP&S expenses recorded in electric transmission
9 O&M accounts are removed to facilitate the revenue sharing
10 mechanism for revenues generated by NP&S (as described in Exhibit
11 No. PGE-0004).

12 Q 8 What is the proposed electric transmission O&M Prior Year TRR?

13 A 8 After making adjustments to the 2017 FERC Form 1 Recorded
14 expenses and applying the appropriate UCC allocations to the
15 Recorded Adjusted O&M expenses in each FERC account, the
16 transmission O&M expense Prior Year TRR is \$239,846,583.

17 **C. Allocation of the Transmission O&M Expenses**

18 Q 9 Please describe how O&M expenses are allocated to the Prior Year
19 TRR using UCCs.

20 A 9 As described in Exhibit No. PGE-0010, PG&E develops UCCs using
21 plant-in-service records. These UCCs are used to assign the costs of
22 providing a service to the appropriate function or functions.

23 Two UCCs, Network Transmission – High Voltage Facilities and
24 Network Transmission – Low Voltage Facilities, are used to allocate
25 electric transmission O&M expenses to the network transmission
26 function. The Prior Year TRR is calculated by using these two UCCs
27 to allocate the total Recorded Adjusted O&M Expenses for each
28 FERC account (Schedule 18, lines 17-30).

29 Q 10 Please describe the allocation of expenses in Account 560 –
30 Operation Supervision and Engineering.

31 A 10 This account includes expenses incurred for the general supervision
32 and direction of the operation of the transmission system as a whole.

1 Direct supervision of specific activities (e.g., station operation and line
2 operation) are charged to the appropriate account. Expenses in this
3 account are allocated to the network transmission function using the
4 Network Transmission – High Voltage Facilities and Network
5 Transmission – Low Voltage Facilities UCCs for this FERC account.

6 Q 11 Please describe the allocation of expenses in Account 561 – Load
7 Dispatching.

8 A 11 This account includes expenses incurred for operating the
9 transmission system safely, reliably, and in compliance with all
10 applicable rules, standards and regulations. Some examples of
11 activities for which expenses are incurred include:

- 12 • Monitoring, assessing, and operating the power system and
13 individual facilities in real-time to maintain safe and reliable
14 operation of the transmission system;
- 15 • Managing transmission facilities to maintain system reliability and
16 monitoring the real-time flows and direct actions according to
17 regional plans and tariffs as necessary; and
- 18 • System control.

19 Expenses in this account are allocated to the network
20 transmission function using the Network Transmission – High Voltage
21 Facilities and Network Transmission – Low Voltage Facilities UCCs
22 for this FERC account.

23 Q 12 Please describe the allocation of expenses in Account 562 – Station
24 Expenses.

25 A 12 This account includes expenses incurred for operating transmission
26 substations and switching stations. Some examples of activities for
27 which expenses are incurred include:

- 28 • Substation automation: developing, implementing, and executing
29 Supervisory Control and Data Acquisition design for substation
30 and line relay equipment; and
- 31 • System protection: developing, implementing, and executing
32 protection design for substation and line relay equipment.

1 Expenses in this account are allocated to the network
2 transmission function using the Network Transmission – High Voltage
3 Facilities and Network Transmission – Low Voltage Facilities UCCs
4 for this FERC account.

5 Q 13 Please describe the allocation of expenses in Account 563 –
6 Overhead Line Expenses.

7 A 13 This account includes expenses incurred for operating overhead
8 transmission lines. Some examples of activities for which expenses
9 are incurred include:

- 10 • Patrolling and inspecting assets to identify any potential safety
11 and reliability issues; and
- 12 • Maintaining access to key encroachments, Right-of-Ways
13 (ROW), and access roads.

14 Expenses in this account are allocated to the network
15 transmission function using the Network Transmission – High Voltage
16 Facilities and Network Transmission – Low Voltage Facilities UCCs
17 for this FERC account.

18 Q 14 Please describe the allocation of expenses in Account 564 –
19 Underground Line Expenses.

20 A 14 This account includes expenses incurred for operating underground
21 transmission lines. Some examples of activities for which expenses
22 are incurred include:

- 23 • Inspecting assets to identify any potential safety and reliability
24 issues; and
- 25 • Maintaining location information on underground transmission
26 assets to ensure PG&E assets are identified for the public and
27 PG&E personnel.

28 Expenses in this account are allocated to the network
29 transmission function using the Network Transmission – High Voltage
30 Facilities and Network Transmission – Low Voltage Facilities UCCs
31 for this FERC account.

32 Q 15 Please describe the allocation of expenses in Account 565 –
33 Transmission of Electricity by Others.

1 A 15 This account includes expenses incurred for payments made to
2 others for transmission service over their facilities. All expenses
3 recorded in Account 565 are related to transmission service on High
4 Voltage transmission facilities. Accordingly, all expenses in this
5 account are allocated to the network transmission function – High
6 Voltage Facilities.

7 Q 16 Please describe the allocation of expenses in Account 566 –
8 Miscellaneous Transmission Expenses.

9 A 16 This account includes expenses incurred for transmission map and
10 record work, transmission office expenses, and other transmission
11 expenses not included in other transmission accounts. Some
12 examples of activities for which expenses are incurred include:

- 13 • Physical security measures at facilities in compliance with various
14 requirements: managing physical access to facilities, monitoring
15 facilities, operating and maintaining security systems, and
16 investigating and responding to incidents;
- 17 • Physical security officer coverage at critical transmission
18 substations and control centers;
- 19 • Information Technology (IT) end user support of PG&E's IT
20 infrastructure for the lines of business and operational systems
21 which enables them to communicate, transport and store data;
22 governance, oversight, and support of PG&E's cybersecurity
23 strategies and programs to safeguard and ensure the reliability
24 and resiliency of PG&E's assets; and delivery and support of
25 application technology projects that support asset and records
26 management, design and work management, system operations,
27 and workforce mobilization and resource management;
- 28 • Maintaining PG&E's fleet; and
- 29 • Staff support in various areas, such as business operations and
30 business finance.

31 Expenses in this account are allocated to the network
32 transmission function using the Network Transmission – High Voltage

1 Facilities and Network Transmission – Low Voltage Facilities UCCs
2 for this FERC account.

3 Q 17 Please describe the allocation of expenses in Account 568 –
4 Maintenance Supervision and Engineering.

5 A 17 This account includes expenses incurred for the general supervision
6 and direction of the maintenance of the transmission system. Direct
7 field supervision of specific activities is charged to the appropriate
8 maintenance account. Expenses in this account are allocated to the
9 network transmission function using the Network Transmission – High
10 Voltage Facilities and Network Transmission – Low Voltage Facilities.

11 Q 18 Please describe the allocation of expenses in Account 569 –
12 Maintenance of Structures.

13 A 18 This account includes expenses incurred for the maintenance of
14 structures and buildings that serve the transmission function.
15 Expenses in this account are allocated to the network transmission
16 function using the Network Transmission – High Voltage Facilities
17 and Network Transmission – Low Voltage Facilities.

18 Q 19 Please describe the allocation of expenses in Account 570 –
19 Maintenance of Station Equipment.

20 A 19 This account includes expenses incurred for maintaining transmission
21 assets in substations, including preventative and corrective
22 maintenance and overall engineering support to maintain safe and
23 reliable facilities. Expenses in this account are allocated to the
24 network transmission function using the Network Transmission – High
25 Voltage Facilities and Network Transmission – Low Voltage Facilities.

26 Q 20 Please describe the allocation of expenses in Account 571 –
27 Maintenance of Overhead Lines.

28 A 20 This account includes expenses incurred for maintaining overhead
29 transmission plant. Some examples of activities for which expenses
30 are incurred include:

- 31 • Preventative and corrective maintenance of steel and wood
- 32 support structures;
- 33 • Vegetation management activities:

1 Routine Tree Work: Regular inspection and maintenance of
2 various radial clearances for conductors and structures based on
3 state and federal regulations and line voltages as well as manage
4 hazard trees (i.e., trees that could create a hazard by falling onto
5 transmission lines) both on and off the ROW.

6 ROW Reclamation and Reliability: Clearing vegetation and
7 widening of rights-of-way to help ensure system safety and
8 reliability.

9 Integrated Vegetation Management: Promote sustainable low-
10 growing vegetation within transmission ROWs.

11 Vegetation Control: Maintain firebreaks around the bases of
12 poles and towers that support switches to comply with state
13 regulations.

- 14 • Transmission Tower Coating Maintenance: Maintaining and
15 improving public safety by re-coating electric transmission towers,
16 which currently are coated in lead-based paint, with new non-
17 lead-based paint.

18 Expenses in this account are allocated to the network
19 transmission function using the Network Transmission – High Voltage
20 Facilities and Network Transmission – Low Voltage Facilities.

21 Q 21 Please describe the allocation of expenses in Account 572 –
22 Maintenance of Underground Lines.

23 A 21 This account includes expenses incurred for maintaining underground
24 transmission plant, including preventative and corrective maintenance
25 activities for underground transmission lines. Expenses in this
26 account are allocated to the network transmission function using the
27 Network Transmission – High Voltage Facilities and Network
28 Transmission – Low Voltage Facilities.

29 Q 22 Please describe the allocation of expenses in Account 573 –
30 Maintenance of Miscellaneous Transmission Plant.

31 A 22 This account includes expenses incurred for maintenance of
32 transmission plant that is not included in other transmission accounts.
33 For example, expenses associated with administrative and field work

1 to ensure that PG&E transmission facilities have the proper licenses
2 to occupy space on land owned by third parties are included in this
3 account. Expenses in this account are allocated to the network
4 transmission function using the Network Transmission – High Voltage
5 Facilities and Network Transmission – Low Voltage Facilities.

6 Q 23 Does this conclude your testimony?

7 A 23 Yes, it does.

DECLARATION

I, Jessica Tsang, identified in the foregoing prepared direct testimony, do hereby declare under penalty of perjury, that I prepared or caused such testimony to be prepared; that the answers appearing therein are true to the best of my knowledge and belief; and that if asked the questions appearing therein, my answers would, under oath, be the same.

Executed on September 19, 2018 at San Francisco, California.

/s/ Jessica Tsang

Jessica Tsang